

CAP 642

Airside Safety Management

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List of Effective Pages

Chapter	Part	Page	Date	Chapter	Part	Page	Date
		iii	5 September 2006	Chapter 2		12	4 November 2005
		iv	5 September 2006	Chapter 2		13	4 November 2005
		v	5 September 2006	Chapter 2		14	4 November 2005
		vi	4 November 2005	Chapter 2		15	4 November 2005
		vii	4 November 2005	Chapter 2		16	4 November 2005
		viii	4 November 2005	Chapter 2		17	4 November 2005
		ix	4 November 2005	Chapter 2		18	28 February 2003
		x	4 November 2005	Chapter 2		19	28 February 2003
		xi	4 November 2005	Chapter 2		20	28 February 2003
		xii	4 November 2005	Chapter 2		21	28 February 2003
		xiii	4 November 2005	Chapter 2		22	28 February 2003
		xiv	4 November 2005	Chapter 2		23	28 February 2003
		xv	4 November 2005	Chapter 2		24	28 February 2003
Revision History		1	5 September 2006	Chapter 2		25	28 February 2003
Glossary		1	4 November 2005	Chapter 2		26	28 February 2003
Glossary		2	4 November 2005	Chapter 2		27	4 November 2005
Glossary		3	4 November 2005	Chapter 2		28	4 November 2005
References		1	4 November 2005	Chapter 2		29	4 November 2005
References		2	4 November 2005	Chapter 2		30	4 November 2005
References		3	4 November 2005	Chapter 2		31	4 November 2005
References		4	4 November 2005	Chapter 2		32	4 November 2005
Introduction		1	4 November 2005	Chapter 2		33	4 November 2005
Introduction		2	4 November 2005	Chapter 2		34	4 November 2005
Introduction		3	4 November 2005	Chapter 2		35	4 November 2005
Introduction		4	4 November 2005	Chapter 2		36	4 November 2005
Chapter 1		1	4 November 2005	Chapter 2		37	4 November 2005
Chapter 1		2	28 February 2003	Chapter 2		38	4 November 2005
Chapter 1		3	28 February 2003	Chapter 2		39	4 November 2005
Chapter 1		4	28 February 2003	Chapter 2		40	4 November 2005
Chapter 1		5	28 February 2003	Chapter 2		41	4 November 2005
Chapter 1		6	28 February 2003	Chapter 2		42	4 November 2005
Chapter 1		7	28 February 2003	Chapter 2	Appendix A	1	16 May 2003
Chapter 1		8	4 November 2005	Chapter 2	Appendix A	2	16 May 2003
Chapter 1		9	28 February 2003	Chapter 2	Appendix B	1	16 May 2003
Chapter 1		10	28 February 2003	Chapter 2	Appendix B	2	4 November 2005
Chapter 2		1	28 February 2003	Chapter 2	Appendix B	3	4 November 2005
Chapter 2		2	28 February 2003	Chapter 2	Appendix B	4	4 November 2005
Chapter 2		3	28 February 2003	Chapter 2	Appendix C	1	16 May 2003
Chapter 2		4	28 February 2003	Chapter 2	Appendix C	2	4 November 2005
Chapter 2		5	28 February 2003	Chapter 2	Appendix C	3	4 November 2005
Chapter 2		6	4 November 2005	Chapter 2	Appendix C	4	4 November 2005
Chapter 2		7	4 November 2005	Chapter 2	Appendix D	1	4 November 2005
Chapter 2		8	4 November 2005	Chapter 2	Appendix D	2	16 May 2003
Chapter 2		9	4 November 2005	Chapter 2	Appendix D	3	16 May 2003
Chapter 2		10	4 November 2005	Chapter 2	Appendix D	4	16 May 2003
Chapter 2		11	4 November 2005	Chapter 2	Appendix E	1	16 May 2003

Chapter	Part	Page	Date	Chapter	Part	Page	Date
Chapter 2	Appendix E	2	16 May 2003	Chapter 3	Appendix F	2	16 May 2003
Chapter 2	Appendix F	1	16 May 2003	Chapter 3	Appendix F	3	16 May 2003
Chapter 2	Appendix F	2	4 November 2005	Chapter 3	Appendix F	4	16 May 2003
Chapter 2	Appendix F	3	16 May 2003	Chapter 3	Appendix F	5	28 February 2003
Chapter 2	Appendix G	1	16 May 2003	Chapter 3	Appendix F	6	28 February 2003
Chapter 2	Appendix G	2	16 May 2003	Chapter 3	Appendix F	7	28 February 2003
Chapter 2	Appendix G	3	28 February 2003	Chapter 3	Appendix F	8	28 February 2003
Chapter 2	Appendix H	1	16 May 2003	Chapter 3	Appendix F	9	28 February 2003
Chapter 2	Appendix H	2	16 May 2003	Chapter 3	Appendix F	10	28 February 2003
Chapter 2	Appendix H	3	16 May 2003	Chapter 3	Appendix F	11	28 February 2003
Chapter 2	Appendix I	1	16 May 2003	Chapter 3	Appendix F	12	28 February 2003
Chapter 2	Appendix I	2	16 May 2003	Chapter 3	Appendix F	13	28 February 2003
Chapter 2	Appendix I	3	16 May 2003	Chapter 3	Appendix F	14	28 February 2003
Chapter 2	Appendix I	4	16 May 2003	Chapter 3	Appendix F	15	28 February 2003
Chapter 2	Appendix J	1	16 May 2003	Chapter 3	Appendix F	16	28 February 2003
Chapter 2	Appendix J	2	16 May 2003	Chapter 4		1	28 February 2003
Chapter 2	Appendix K	1	16 May 2003	Chapter 4		2	28 February 2003
Chapter 2	Appendix K	2	16 May 2003	Chapter 4		3	28 February 2003
Chapter 2	Appendix L	1	16 May 2003	Chapter 4		4	28 February 2003
Chapter 2	Appendix L	2	16 May 2003	Chapter 4		5	28 February 2003
Chapter 2	Appendix L	3	16 May 2003	Chapter 4		6	28 February 2003
Chapter 3		1	28 February 2003	Chapter 4		7	4 November 2005
Chapter 3		2	28 February 2003	Chapter 4		8	4 November 2005
Chapter 3		3	28 February 2003	Chapter 4		9	4 November 2005
Chapter 3		4	28 February 2003	Chapter 4		10	4 November 2005
Chapter 3		5	28 February 2003	Chapter 4	Appendix A	1	16 May 2003
Chapter 3		6	28 February 2003	Chapter 4	Appendix A	2	4 November 2005
Chapter 3		7	28 February 2003	Chapter 4	Appendix A	3	28 February 2003
Chapter 3		8	28 February 2003	Chapter 4	Appendix B	1	16 May 2003
Chapter 3		9	28 February 2003	Chapter 4	Appendix B	2	16 May 2003
Chapter 3		10	28 February 2003	Chapter 4	Appendix B	3	16 May 2003
Chapter 3		11	28 February 2003	Chapter 4	Appendix B	4	4 November 2005
Chapter 3		12	28 February 2003	Chapter 4	Appendix B	5	16 May 2003
Chapter 3		13	28 February 2003	Chapter 4	Appendix B	6	16 May 2003
Chapter 3		14	28 February 2003	Chapter 4	Appendix B	7	16 May 2003
Chapter 3		15	28 February 2003	Chapter 4	Appendix B	8	16 May 2003
Chapter 3	Appendix A	1	28 February 2003	Chapter 4	Appendix B	9	28 February 2003
Chapter 3	Appendix B	1	16 May 2003	Chapter 4	Appendix B	10	28 February 2003
Chapter 3	Appendix B	2	16 May 2003	Chapter 4	Appendix C	1	16 May 2003
Chapter 3	Appendix C	1	28 February 2003	Chapter 4	Appendix C	2	16 May 2003
Chapter 3	Appendix C	2	28 February 2003	Chapter 4	Appendix C	3	28 February 2003
Chapter 3	Appendix D	1	16 May 2003	Chapter 4	Appendix C	4	28 February 2003
Chapter 3	Appendix D	2	16 May 2003	Chapter 4	Appendix C, Annex A	1	28 February 2003
Chapter 3	Appendix D	3	16 May 2003	Chapter 4	Appendix C, Annex B	1	5 September 2006
Chapter 3	Appendix D	4	16 May 2003	Chapter 4	Appendix C, Annex B	2	5 September 2006
Chapter 3	Appendix E	1	16 May 2003	Chapter 4	Appendix C, Annex B	3	5 September 2006
Chapter 3	Appendix E	2	16 May 2003	Chapter 4	Appendix C, Annex B	4	5 September 2006
Chapter 3	Appendix F	1	16 May 2003	Chapter 4	Appendix C, Annex B	5	5 September 2006

Chapter	Part	Page	Date	Chapter	Part	Page	Date
Chapter 4	Appendix C, Annex B	6	5 September 2006	Chapter 6		2	28 February 2003
Chapter 4	Appendix C, Annex B	7	5 September 2006	Chapter 6		3	28 February 2003
Chapter 4	Appendix C, Annex B	8	5 September 2006	Chapter 6		4	28 February 2003
Chapter 4	Appendix C, Annex B	9	5 September 2006	Chapter 6		5	28 February 2003
Chapter 4	Appendix C, Annex B	10	5 September 2006	Chapter 6		6	28 February 2003
Chapter 4	Appendix C, Annex B	11	5 September 2006	Chapter 6	Appendix A	1	16 May 2003
Chapter 4	Appendix C, Annex B	12	5 September 2006	Chapter 6	Appendix B	1	28 February 2003
Chapter 4	Appendix C, Annex B	13	5 September 2006	Chapter 6	Appendix B	2	28 February 2003
Chapter 4	Appendix C, Annex B	14	5 September 2006	Chapter 6	Appendix C	1	28 February 2003
Chapter 4	Appendix C, Annex B	15	5 September 2006	Chapter 6	Appendix C	2	28 February 2003
Chapter 4	Appendix C, Annex B	16	5 September 2006	Chapter 6	Appendix C	3	28 February 2003
Chapter 4	Appendix C, Annex B	17	5 September 2006	Chapter 6	Appendix C	4	28 February 2003
Chapter 4	Appendix C, Annex B	18	5 September 2006	Chapter 6	Appendix C	5	28 February 2003
Chapter 4	Appendix C, Annex B	19	5 September 2006	Chapter 6	Appendix C	6	28 February 2003
Chapter 4	Appendix C, Annex B	20	5 September 2006				
Chapter 4	Appendix C, Annex B	21	5 September 2006				
Chapter 4	Appendix C, Annex B	22	5 September 2006				
Chapter 4	Appendix C, Annex B	23	5 September 2006				
Chapter 4	Appendix C, Annex B	24	5 September 2006				
Chapter 4	Appendix D	1	16 May 2003				
Chapter 4	Appendix D	2	16 May 2003				
Chapter 4	Appendix D	3	16 May 2003				
Chapter 4	Appendix D, Annex A	1	28 February 2003				
Chapter 4	Appendix D, Annex A	2	28 February 2003				
Chapter 4	Appendix D, Annex A	3	28 February 2003				
Chapter 4	Appendix D, Annex A	4	28 February 2003				
Chapter 4	Appendix E	1	4 November 2005				
Chapter 4	Appendix E	2	4 November 2005				
Chapter 4	Appendix E	3	4 November 2005				
Chapter 4	Appendix F	1	16 May 2003				
Chapter 4	Appendix F	2	16 May 2003				
Chapter 4	Appendix F	3	16 May 2003				
Chapter 4	Appendix F	4	16 May 2003				
Chapter 4	Appendix F	5	16 May 2003				
Chapter 4	Appendix F	6	16 May 2003				
Chapter 4	Appendix F	7	16 May 2003				
Chapter 4	Appendix F	8	16 May 2003				
Chapter 5		1	28 February 2003				
Chapter 5		2	28 February 2003				
Chapter 5		3	28 February 2003				
Chapter 5		4	28 February 2003				
Chapter 5		5	28 February 2003				
Chapter 5	Appendix A	1	16 May 2003				
Chapter 5	Appendix A	2	16 May 2003				
Chapter 5	Appendix A	3	28 February 2003				
Chapter 5	Appendix A	4	28 February 2003				
Chapter 5	Appendix A	5	28 February 2003				
Chapter 6		1	28 February 2003				

INTENTIONALLY LEFT BLANK

Contents

List of Effective Pages

Revision History

Glossary

References

Useful References and Further Reading	1
Legislation	1
Reference documents	1
Useful additional reading	3

Introduction

Origin and History	1
Purpose	1
Applicability	2
The Status of CAP 642 Airside Safety Management	2
Compliance with Statutory Requirements	3
The Air Navigation Order	3
CAP 168 Licensing of Aerodromes	4
Airport Byelaws	4
Amendment	4

Chapter 1 **General Principles of the Management of Health and Safety Airside**

Introduction	1
Key legal duties	3
Interface between HSE and CAA SRG	10

Chapter 2 **Managing the risks**

Introduction	1
Potential Hazards on the Apron	1
Vehicles Striking aircraft and/or People	2

Hazards to passengers on the apron	3
Moving Aircraft	5
Aircraft Parking Safety Practices	5
Engine Hazards	15
Falls and falling objects	20
Airbridge Operations	25
Manual Handling	28
Noise	29
Work equipment (including machinery)	31
Hazardous Substances and dangerous goods	33
Inadequate Lighting, Glare and Confusing Lights	36
Adverse weather conditions (including Winter operations)	37
Slips and trips	39
Electrical Hazards	40
Faults and defects	41
Movement Area Inspections	42

Appendix A Model Ramp Operation Procedures - Aircraft Chocking

Introduction	1
The Procedure	1
Key Safety Points	2

Appendix B Model Safety Instruction - Operation of Visual Docking Guidance System

Introduction	1
System	1
Responsibility for Operation of VDGS	1
Marshalling Service	2
Airbridge Unserviceability	2
Stop Short Procedure	2
Emergency Stop Procedure	3
VDGS Safety Summary	3
Mirror Docking Guidance System	3
General	4

Appendix C	Model Ramp Operation Procedures - Aircraft Push-back (Conventional Tugs)	
	Introduction	1
	Procedures – Conventional Tug and Towbar	2
	Key Safety Points	4
Appendix D	Model Ramp Operation Procedures - Towbarless Tug Vehicle (TLTV) Operation	
	Introduction	1
	Ramp Operating Procedures	2
	Aircraft Attachment	2
	Aircraft Pushback	3
	Key Safety Points	4
Appendix E	Model Safety Instruction - Aircraft Power-back Procedures	
	Introduction	1
	Power-Back Requirements	1
	Power-Back Demonstration	2
	Applications	2
	General	2
Appendix F	Model Safety Instruction - Aircraft Blast and Fumes	
	Introduction	1
	Arrival Procedures	1
	Departure Procedure – Engine Start	2
	Push-Back Procedure – Blast Precautions	2
	Taxying	2
	Safety in the Vicinity of Works Areas	3
	Aircraft Self Manoeuvre	3
	General	3
Appendix G	Model Safety Instruction - Aircraft Engine Ground Runs and the use of Auxiliary Power Units	
	Introduction	1
	Definition	1
	Approval	1
	Safety	2
	Auxiliary Power Units	3
	Ground Power Units	3
	General	3

Appendix H	Model Safety Instruction - Foreign Object Debris/Damage	
	Introduction	1
	General Rules	2
	General	3
Appendix I	Model Safety Instruction - Passenger Airbridges	
	Introduction	1
	Passenger Airbridge Service	1
	Airbridge Operator Licensing	1
	Airbridge Operator's Responsibilities	2
	Operation of Airbridges	3
	Parking Boxes	3
	Visual Docking Guidance System (VDGS)	3
	Stop Short Procedures	3
	Fault Reporting	4
	Emergency Stop and Emergency Back-off Action	4
	Accident Reporting Procedure	4
	General	4
Appendix J	Model Safety Instruction - Strong Winds	
	Introduction	1
	Strong Wind Warnings	1
	Responsibilities In Strong Winds	1
	Airbridges	2
	Positioning and Picketing of Aircraft	2
	Towing of Aircraft	2
	Cancellation of Strong Wind Warnings	2
	General	2
Appendix K	Model Safety Instruction - Apron Operations in Low Visibility Conditions	
	Introduction	1
	Low Visibility Warnings	1
	Responsibilities During LVPs	1
	Taxiway Crossings	2
	Low Visibilities on Aprons	2
	Cancellation of LVPs	2
	General	2

Appendix L	Model Safety Instruction - Winter Operations and Apron Hazards	
	Introduction	1
	Notification	1
	Manpool Responsibilities	1
	Precautions in Freezing Conditions	2
	Avoidance of Water Spillage from Vehicles/Installations	2
	General	3
Chapter 3	Airside Development and the Management of Airside Works	
	Introduction	1
	The Planning Process	4
	Planning Strategy	5
	Partnerships in Planning	6
	Communication	7
	Master Plan	8
	Contingency Plans	8
	Ground Handling Policy	9
	Apron Equipment Initiatives	9
	Safeguarding	10
	Planning of Individual Projects	10
	Management of Projects	11
	Communication and Notification	12
	Contractors Airside Safety Briefing	13
	Control and Management of Works	14
	The Aerodrome Manual	15
Appendix A	Aerodrome Safeguarding Criteria	
	Checklist of Aerodrome Safeguarding Criteria	1
Appendix B	Model Terms of Reference - Airside Safety Committee	
Appendix C	Planning of Construction Projects	

Appendix D	Model Safety Instruction - Works on the Movement Area and Works Permits	
	Introduction	1
	Aerodrome Areas Concerned	1
	Works Permit System	2
	Exemptions	2
	Responsibilities	2
	Term Contractors	3
	General	3
Appendix E	Model Safety Standard to be Adhered to by Contractors Working Within an Aerodrome Authority's Premises	
	Introduction	1
	Airport Controls and Reference documents	1
	Manpool Airport control authorities	2
	Action	2
Appendix F	Model Guidance Notes - Hot Works in External Airside Areas	
	Guidance Notes for Establishing the Need for Hot Work in Airside Areas	1
	Guidance Notes on the Risk Assessment of Hot Works	1
	Guidance Notes on Training, Instruction and Information (TII)	2
	Guidance Notes on Equipment	3
	Guidance Notes on Isolation Protocol for Smoke Detectors/Fire Alarm Loops for Dusty Work	3
	Guidance Notes on Hot Work Audit	4
	Safe System of Hot Work	5
	Safe Systems of Hot Work - Airside Movement Area	6
Chapter 4	Airside Vehicle Operation and Driving	
	Introduction	1
	Key Elements in the Regime	1
	Airside Driving – Rules and Procedures	2
	Training	9
	The Monitoring of Standards	9
	Performance Management	10
	Operation of Vehicles on the Airside	10

Appendix A Airside Driving Permits

Legal Duties Relating to Health & Safety at Work.	1
Driving Licences	1
Health Standards	2
Airside Driver Training	2

Appendix B Model Instruction for the issue of Airside Vehicle Permits

Introduction	1
Function of an AVP	1
Types of AVPs	1
Display of AVP	1
Conditions of Issue	2
Acceptance of Conditions of Issue	2
Vehicle Requirements	2
Employer's Responsibility	4
Responsibility of Sponsors	5
Insurance Requirements for the Issue of an AVP	5
Application Procedure for the Issue of an AVP	5
Validity of AVPs	6
Charges for AVPs	6
Lost or Stolen AVPs	7
Further Requirements for the Issue of a Short Term AVP	7
Personnel Identity and Escorts	7
Authorised Signatories	7
Low Visibility Operations	7
Legal Aspects	7
Illegally Parked Vehicles	8
Questions	8

Appendix C Model Safety Instructions - Airside Vehicle, Plant and Equipment Safety Inspections

Introduction	1
Definitions	1
Validity of a Vehicle, Plant or Equipment Safety Inspection	1
Providing Evidence of a Satisfactory Vehicle, Plant and Equipment Inspection	3
Vehicle, Plant and Equipment Safety Inspections Accepted by Manpool	3

	Apron Vehicle/Plant and Equipment Safety Audits	3
	Diesel Emission Standards	3
	Failure to Comply	4
	Annex A: Vehicles, Plant and Specialist equipment	
	Standard Vehicles	1
	Specialist Vehicles	1
	Annex B: Safety and Serviceability Inspection Forms	
Appendix D	Model Safety Instruction - Airside Accident/Incident Reporting and Investigation Procedures	
	Introduction	1
	Initial Reporting Procedures	1
	Accident/Incident Investigation	2
	Near Miss Accidents/Incidents	2
	Report of a Hazard or Unsafe Condition	3
	Annex A	
Appendix E	Example Airside Driving Training Syllabus	
	Theoretical training	1
	Practical training	3
Appendix F	Model Safety Instructions – Operation of vehicles on the Airside	
	Introduction	1
	Legal Duties Relating to Health and Safety	1
	Definition of Movement and Manoeuvring Areas	2
	Licensing Requirements	2
	Traffic Rules - General	3
	Lighting Requirements	4
	Movement of Vehicles on the Manoeuvring Area	4
	Foreign Objects on the Manoeuvring Area	5
	Speed Limits	6
	Vehicle Parking	6
	Visiting Vehicles Airside	6
	Vehicle Height Limitations	6
	Right of Way	7

Bicycles	7
Monitoring of Standards	7
Penalties for Non-Compliance	7
Use of Seat Belts when Driving Airside	7

Chapter 5 Training for Safety

Introduction	1
The Safety Training Model	2
Categories of Training	4
Conclusion	5

Appendix A New Starter's Health & Safety Model Checklist

Fire Safety	4
Hazards	4
Specific Safety Instructions	4
Protective Equipment/Clothing	4
Fault Reporting Procedure	4
Name of Safety Representative and Safety Advisor	5
Accident/Incident reporting procedure	5
First Aid Facilities	5
Welfare/Hygiene Facilities	5

Chapter 6 Safety Performance Management and Measurement

Introduction	1
The Fostering and Maintenance of Safety Discipline	1
Active Performance Monitoring and Management	2
Investigation of Accidents and Incidents	3
Enforcement of Regulations	4
Implementation of Remedial Action	6
Conclusion	6

Appendix A Model Company Policy Statement

Appendix B Model Safety Instruction - Reporting Aircraft Ground Damage Incidents

General Policy	1
Purpose of Investigations	1

Publication and Personal Privacy	1
Disciplinary Proceedings	1
Counselling and Support	2

Appendix C Accident and Incident Analysis and Assessment – Model Proforma

Revision History

Issue 1**March 1995**

CAP 642, Airside Safety Management, was originally produced to provide guidance to aircraft and airport operators, and third party organisations as necessary, on safe operating practices for airside activities. The airline and airport operators and their safety regulator were concerned about the high rate of ground handling and similar airside incidents that occur, and the level and extent of damage caused to aircraft. The document was produced by a Working Group comprising representatives drawn from the CAA, the Health and Safety Executive and the airport and airline industries.

Issue 2**28 February 2003**

Issue 2 followed a substantial review by the Working Group and incorporated significant revisions to reflect changes to legislation and advances in safety management practice.

Amendment 1/2003**16 May 2003**

In addition to minor editorial corrections, amendment 1/2003 incorporated additional advice that resulted from recommendations made in an Air Accident Investigation Branch report of an incident involving an aircraft and an airbridge. The amendment reflected the need for airbridge operators to be fully familiar with the operating characteristics and control systems of the type of airbridge that was being used.

Amendment 1/2005**4 November 2005**

Amendment 1/2005 incorporates revisions to reflect the introduction of the Air Navigation Order 2005 and additional guidance related to the responsibilities of those involved in the towing and manoeuvring of aircraft. The latter material was developed in response to the findings of an Air Accident Investigation Branch investigation in which an aircraft under tow was in collision with another aircraft on the manoeuvring area.

Editorial changes and amendments convenient to be included at this time have also been incorporated, including the incorporation of this Revision History and the removal of the Foreword.

Amendment 1/2006**5 September 2006**

Amendment 1/2006 incorporates an Important Note at Chapter 4, Appendix C, Annex B, together with 'Specimen' watermark in Annex B Safety and Serviceability Inspection Forms. Minor editorial amendments have also been included.

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Glossary

ACOP	Approved Code of Practice published by HSE
AGL	Aeronautical Ground Lighting
ANO	Air Navigation Order 2005
ANO(DG)	Air Navigation (Dangerous Goods) Regulations 2002
APU	Auxiliary Power Unit
ATC	Air Traffic Control
ATEX	Protection of Workers Potentially at Risk from Explosive Atmospheres Directive
BS	British Standard
BS EN	Harmonised European Standard
CAA	Civil Aviation Authority
CDG Road	Carriage of Dangerous Goods by Road Regulations 1996
CAD	Chemical Agents Directive
CAP	Civil Aviation Publication (published by CAA)
CCTV	Closed Circuit Television
COSHH	Control of Substances Hazardous to Health Regulations 1999
CDM	Construction (Design and Management) Regulations 1994
dB	decibels
dB(A)	decibels A-weighted (to reflect the response of the human ear)
EU	European Union
FEGP	Fixed Electrical Ground Power
FOD	Foreign Object Debris or Foreign Object Damage
GPU	Ground Power Unit
HSE	Health and Safety Executive
HSG	Health and Safety guidance booklets (published by HSE)
HSW Act	Health and Safety at Work etc Act 1974
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
ILS	Instrument Landing System
INDG	Guidance leaflets published by HSE
IRR	Ionising Radiation Regulations 1999

JAR-OPS	Joint Aviation Requirements - Operations
L_{EP,d}	Personal noise exposure
LOLER	Lifting Operations and Lifting Equipment Regulations 1998
LVP	Low Visibility Procedures
MEWP	Mobile Elevating Working Platform
MHSWR	Management of Health and Safety at Work Regulations 1999
MOR	Mandatory Occurrence Report
NOTAL	Notice to Aerodrome Licencees
POB	Persons on board
PPE	Personal Protective Equipment
PUWER	Provision of Work Equipment Regulations 1998
REPIR	Radiation (Emergency Preparedness and Information) Regulations 2001
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995
RT	RadioTelephone/RadioTelephony
SMS	Safety Management System
SOP	Standard Operating Procedure
SRG	Safety Regulation Group (CAA)
VDGS	Visual Docking Guidance System

Definitions

Although there are many terms used in this document that have a particular meaning, the following are of particular significance:

Apron	A defined area on a land aerodrome provided for the stationing of aircraft for the embarkation and disembarkation of passengers, the loading and unloading of cargo, and for parking.
Manoeuvring Area	That part of an aerodrome provided for the take-off and landing of aircraft and for the movement of aircraft on the surface, excluding the apron and any part of the aerodrome provided for the maintenance of aircraft.
Movement Area	That part of an aerodrome intended for the surface movement of aircraft, including the manoeuvring area, aprons and any part of the aerodrome provided for the maintenance of aircraft. Note: Manoeuvring Area and Movement Area are generic terms intended to describe the 'airside' part of an aerodrome, rather than just those pavements or surfaces on which aircraft movements take place.
Runway	A defined rectangular area, on a land aerodrome prepared for the landing and take-off run of aircraft along its length.
Taxiway	A defined path on a land aerodrome established for the taxiing of aircraft and intended to provide a link between one part of the aerodrome and another, including: a) Aircraft stand taxilane. A portion of an apron designated as a taxi route intended to provide access to aircraft stands only. b) Apron taxiway. A portion of a taxiway system located on an apron and intended to provide a through taxi route across the apron. c) Rapid exit taxiway. A taxiway connected to a runway at an acute angle and designed to allow landing aeroplanes to turn off at higher speeds than are achieved on other exit taxiways thereby minimising runway occupancy times.

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References

1 Useful References and Further Reading

Documents published by the Civil Aviation Authority are available for purchase from TSO, PO Box 29, Norwich, NR3 1GN (Telephone 0870 600 5522). Many CAA documents are also available from the CAA's web site at www.caa.co.uk.

Documents published by the Health and Safety Executive are obtainable from good bookshops and also HSE Books, PO Box 1999, Sudbury, Suffolk, CO10 6FS (Telephone 01787 881165). Subscribers to HSE Direct can download documents direct from the web at www.hsedirect.com. Some free leaflets are also available on HSE's website at www.hse.gov.uk.

The following documents contain regulations, guidance or information concerned with airside safety. Many of the documents listed below describe in detail the responsibilities of those involved in ensuring the safety of personnel and aircraft in airside areas of airports and are necessary reading. It should be noted that the list is by no means exhaustive but is intended as an initial reference for further reading.

2 Legislation

Air Navigation (Dangerous Goods) Regulations 2002

Air Navigation Order 2005

Carriage of Dangerous Goods by Road Regulations 1996

Construction (Design and Management) Regulations (CDM) 1994

Control of Substances Hazardous to Health Regulations (COSHH) 2002

Electricity at Work Regulations (EAW) 1989

Health and Safety (Safety Signs and Signals) Regulations 1996

Ionising Radiations Regulations (IRR) 1999

Lifting Operations and Lifting Equipment Regulations (LOLER) 1998

Manual Handling Operations Regulations 1992, amended 2002

Provision and Use of Work Equipment Regulations (PUWER) 1998

Radiation (Emergency Preparedness and Public Information) Regulations (REPPPIR) 2001

Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 1995

The Health and Safety at Work etc. (HSW) Act 1974

The Management of Health and Safety at Work Regulations (MHSWR) 1999

The Workplace (Health, Safety and Welfare) Regulations 1992

3 Reference documents

A guide to the RIDDOR Regulations 1995 L73 ISBN 0 7176 2431 5

Aircraft Turnround - A guide for airport and aerodrome operators, airlines and service providers on achieving control, cooperation and coordination. HSG209 ISBN 0 7176 1860 9

CAP 32 United Kingdom Aeronautical Information Publication (UK AIP)

CAP 168 Licensing of Aerodromes

CAP 360 Air Operators Certificates

CAP 382 Mandatory Occurrence Reporting Scheme

CAP 393 Air Navigation: The Order and the Regulations

CAP 403 Flying Displays: A Guide to Safety and Administrative Arrangements

CAP 413 Radiotelephony Manual

CAP 428 Safety Standards at Unlicensed Aerodromes

CAP 437 Offshore Helicopter Landing Areas - Guidance on Standards

CAP 483 Safe Transport of Dangerous Goods by Air – Guidelines on Training

CAP 512 Ground De-icing of Aircraft

CAP 637 Visual Aids Handbook

CAP 655 Aeronautical Ground Lighting

CAP 668 Dangerous Goods: Operator Responsibilities

CAP 669 Transport of Dangerous Goods by Air: Training Programme

CAP 675 Transport of Dangerous Goods by Air

CAP 680 Aerodrome Bird Control

CAP 700 Operational Safety Competences - A UK Code of Practice

CAP 712 Safety Management Systems for Commercial Air Transport Operations

CAP 726 Guidance for developing and auditing a formal Safety Management System

CAP 728 The Management of Safety

CAP 729 Guidance on Aerodrome Development Procedures

CAP 738 Safeguarding of Aerodromes

CAP 748 Aircraft Fuelling and Fuel Installation Management

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Guidance on Aerodrome Development Procedures

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ICAO Annex 6 Operation of Aircraft.

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ICAO Document 9184 Airport Planning Manual

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NOTAL - Notices to Aerodrome Licence Holders

Safe use of lifting equipment, Lifting Operations and Lifting Equipment Regulations 1998 Approved Code of Practice and Guidance L113 ISBN 0 7176 1628 2

Safe use of work equipment – Provision and Use of Work Equipment Regulations 1998 – Approved Code of Practice and Guidance on Regulations L22 ISBN 0 7176 1626 6

Successful Health and Safety Management (revised 1997) HSG65 ISBN 0 7176 1276 7

UK Aeronautical Information Circulars

4 Useful additional reading

5 Steps to Risk Assessment IND(G)163(rev1) Free leaflet

A Pain in your Workplace - Ergonomic Problems and Solutions HS(G) 121 ISBN 0 7176 0668 6

Buying new machinery INDG271 Free leaflet

Carriage of dangerous goods by explained Part 2: Carriage of dangerous goods by road. HSG161 ISBN 0 7176 1253 8

COSHH: a brief guide to the regulations INDG136(rev 1) Free leaflet

Ear protection: Employers' duties explained INDG298 Free leaflet

Electrical safety and you INDG231L Free leaflet

Electricity at Work: Safe working practices HSG85 ISBN 0 11 882081 8

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Health and Safety in Construction 2001 HSG150 ISBN 0 7176 2106 5

Health surveillance in noisy industries: Advice for employers INDG193L Free leaflet

Improving maintenance – a guide to reducing human error ISBN 0 7176 1818 8

Involving employees in Health and Safety HSG217 ISBN 0 7176 2053 0

Lighting at Work HSG38 ISBN 0 7176 1232 5

Maintaining portable and transportable electrical equipment HSG107 ISBN 0 7176 0715 1

Managing construction for health and safety CDM Approved Code of Practice L54 ISBN 0 7176 0792 5

Managing contractors A guide for employers HSG159 ISBN 0 7176 1196 5

Managing risk - adding value. How big firms manage contractual relations to reduce risk HSE Books 1998 ISBN 0 7176 1536 7

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Manual handling operations: Baggage handling at airports Air Transport Information Sheet No. 2

Memorandum of guidance on the Electricity at Work Regulations 1989: Guidance on the Regulations. HSR25 ISBN 0 11 883963 2

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Preventing slips, trips and falls at work INDG225L (Free leaflet)

Quantified risk assessment of aircraft fuelling operations CRR288 ISBN 0 7176 1840 4

Reducing noise at work: Guidance on the Noise at Work Regulations 1989 L108 ISBN 0 7176 1511 1

Safety in working with lift trucks HSG6 ISBN 0 11 886395 9

Seven Steps to Successful Substitution of Hazardous Substances HS(G)110 (Free leaflet)

Simple guide to the Lifting Operations and Lifting Equipment Regulations 1998 INDG290 (Free leaflet)

Simple guide to the Provision and Use of Work Equipment Regulations 1998 INDG291 (Free leaflet)

Slips and trips: Guidance for employers on identifying hazards and controlling risks HSG155 ISBN 0 7176 1145 0

The cost of accidents at work HSE Books 1997 ISBN 0-7176-1343-7

The cost of accidents at work (rev 1997) HSG96 ISBN 0 7176 1343 7

Upper Limb Disorders in the Workplace HSG60 (rev) ISBN 07176 1978 8

Use of Contractors – a joint responsibility INDG368 (Free leaflet)

Work with ionising radiation, Ionising Radiations Regulations 1999 Approved Code of Practice and Guidance L121 ISBN 0 7176 1746 7

Workplace Health, Safety and Welfare - Workplace (Health , Safety and Welfare) Regulations 1992 - Approved Code of Practice and Guidance L24 ISBN 0 7176 0413 6

Workplace Transport Safety - Guidance for Employers HS(G) 136 ISBN 0 7176 0935 9.

Introduction

1 Origin and History

CAP 642 Airside Safety Management was originally produced in response to a clear need for guidance about safe operating practices for all those engaged in activities taking place on the airside areas of airports and aerodromes.

The airline and airport industry and their safety regulators were concerned about the level and extent of damage caused to aircraft during ground handling and also about the high rate of 'occurrences' and the associated safety risks to aircraft, passengers and airport workers. This concern was, and continues to be, shared internationally by various groups and organisations.

With the support of industry and the UK Health and Safety Executive (HSE), the UK Civil Aviation Authority (CAA) established a joint Working Group (WG) to review ground handling operations and airside safety with the objective of seeking to identify problems and solutions.

This work was conducted in close co-operation with industry representatives in order to use the experience and expertise of those working 'hands on' in airside operations and to ensure that industry views about the underlying causes of problems were considered.

2 Purpose

The advice and guidance in this document is best described as 'Accepted Good Practice' and represents an acceptable way of doing things. It illustrates how risks might be identified and provides advice about how airside safety can be placed within the context of a systematic and structured management approach – a Safety Management System. It is impossible to guarantee that adherence to the guidance in this document will always satisfy all regulatory requirements under all possible circumstances nor will it guarantee safety. This is simply because service providers (at every level) themselves are ultimately responsible for deciding on the appropriateness and applicability of any particular safety arrangements with respect to their own specific circumstances and for monitoring the suitability and success of the arrangements.

CAP 642 illustrates the sort of things which organisations are expected to consider in the interests of airside safety; it is not intended to be totally comprehensive in the detail provided. Nor does adherence to its content absolve those responsible for securing a safe operating and working environment from thinking for themselves. It indicates the safety organisational elements which, if provided, will help persuade regulatory bodies that the effort to discharge safety accountabilities under the law is effective, well directed and responsible.

Nevertheless, the compilers of this document have sought to give good coverage to those operational situations which contain elements of risk and which might be considered commonplace. For a number of these, the document provides practical examples, through a series of model safety instructions, which can be utilised by airports as the basis for their own orders and instructions. It is important to note that the model procedures reflect the management organisation that might exist at a

typical regional airport and that job titles and responsibilities described in the model procedures will not necessarily be the same at individual airports.

In many cases the responsibility for performing a particular function is not placed on a specific individual and will be delegated to a particular individual or organisation within an airport or aerodrome, or may be shared. In such circumstances the delegation or division of responsibility must be clearly documented and accepted by all parties involved.

Where examples are not provided or material to cover a particular situation is not included it is expected that users will be guided by the general principles set out and illustrated in order to identify and create the circumstances of a safe working and operating environment appropriate to their own requirements.

Ensuring the safety of individuals and of aircraft in airside areas is a complex undertaking and the content of this document cannot be taken in isolation. There are many associated systems and procedure documents, for example the Aerodrome Manual. These systems will affect the various organisations that operate in airside areas at an airport or aerodrome. It is important to recognise that not only will each organisation need to develop its own systems to complement those it interfaces with but that no two aerodromes are alike and that no assumptions can be made based on the solutions used at another location.

3 Applicability

CAP 642 is intended as a guide to accepted practice for all those engaged in working on and around the operational areas of airports, aerodromes or heliports; in fact, anywhere where aircraft are attended and handled. That is, it applies to everybody working airside. Whilst the document is primarily aimed at Licensed Aerodromes, it is equally applicable in most cases to Unlicensed Aerodromes. In these cases the term 'Aerodrome Licensee' should be read as 'Person in charge of the aerodrome'. Any organisation, regardless of size or complexity of operation, can establish an acceptable Safety Management System through the application of the general principles outlined in this document.

4 The Status of CAP 642 Airside Safety Management

CAP 642 is not a legal document but represents an accepted way of organising and operating safe working practices which is endorsed by Industry. The CAA, as part of the ongoing aerodrome licensing process, in conducting its routine inspections and audits of the airside safety environment will lean heavily on these guidelines. The CAA, with endorsement from the HSE, makes it clear that the general principles, processes and procedures set out within this document form the basis of acceptable safety arrangements airside. It is accepted that the principle of an equivalent level of safety – that is the achievement of a safe operating regime by a method other than that recommended – is an acceptable means of compliance with statutory responsibilities.

Chapters 1 and 2 stem directly from legislation protecting workers and members of the public affected by work activities. The legislation frequently requires employers to take certain actions but that requirement is often qualified by the phrase 'so far as is reasonably practicable'. This essentially means that the action taken must allow for the level of risk placed on one side of the scale and the sacrifice (money, time, trouble) needed to avert the risk on the other side of the scale.

In other instances there may be a duty on employers to undertake an assessment and then take the action identified by the assessment. It is also necessary to ensure that the action taken is proportional to the risk.

In Chapters 3–7 there are references to requirements that are additional to the requirements of the HSE. The additional requirements are needed to ensure aerodrome safety.

5 Compliance with Statutory Requirements

The requirements for the safe operation of aerodromes, with respect to aircraft safety, and for the safety of individuals at their places of work are contained within formal legislative requirements which form part of United Kingdom law. It is therefore legally incumbent on those who provide the workplace, all employers and all employees to comply with the safety requirements that are set out in the relevant Statutory Instruments. Nothing in CAP 642 substitutes the requirements of the law.

Concern is sometimes expressed by those responsible for securing safety airside at aerodromes about the apparent overlap of regulatory responsibility between the Civil Aviation Authority and the Health and Safety Executive. The area of responsibility for the two regulatory bodies is clear; the CAA is responsible for securing adequate provision for the safety of aircraft and the HSE is responsible for securing adequate provisions for the safety of individuals in the work place. These responsibilities can, of course, overlap; for example, when a piece of equipment is maintained in such a way that, through incorrect functioning, it poses a hazard to its operator whilst also causing damage to an aircraft. However, the CAA and the HSE recognise this potential for difficulty and work together to resolve any overlaps and to detect any potential areas where neither has assumed responsibility.

Users of this document must be aware of other statutory provisions that may apply to their activities, for example, the duty to report aircraft accidents and certain occurrences. It is the responsibility of all those involved with the operation of aerodromes, aircraft and the provision of services to be familiar with any such legal obligations.

6 The Air Navigation Order

The Air Navigation Order 2005 (The Order) is the principal statement of detailed legislative requirements for the regulation of UK civil aviation. The Order is made under provisions contained in Section 60 of the Civil Aviation Act 1982, and forms part of the criminal law. ICAO Standards form the basis of many of the requirements set out in the Order.

The principal points of interest with respect to CAP 642 relate to the requirements about which the CAA will need to be satisfied before it will grant an aerodrome licence. These are set out in Articles contained in Part X of The Order.

7 CAP 168 Licensing of Aerodromes

CAP 168 Licensing of Aerodromes is essentially a minimum requirements statement of what the CAA will require with respect to the physical characteristics of aerodrome licensing in order to be satisfied about safety. CAP 168 is based largely upon the Standards and Recommended Practices of ICAO Annex 14.

Documents like CAP 168 represent guidance material. They are not part of the law, unless conditions are placed on the aerodrome licence requiring compliance with a particular provision of the guidance document. Except in these circumstances, failure to comply with the guidance material will not in itself be a criminal offence but may indicate a failure to comply with a general obligation or duty contained in the legislation. In the event of a prosecution for failure to comply with that general duty, the guidance material may well be referred to by the regulator in identifying the precise steps which it would have thought appropriate in order to discharge that general duty. Quite apart from prosecution action, the CAA may wish to consider taking action against the aerodrome licence itself; in an extreme case, perhaps, proposing to revoke the licence where it considers that aircraft safety is being prejudiced as a result.

8 Airport Byelaws

Where special rules apply at an airport, such as airport byelaws, it is imperative that, where appropriate, these rules form part of the airport's Safety Management System and that the specific rules are communicated to all users.

Where formal byelaws are not enacted, it is for an airport's management to decide on which rules and regulations need to be in place to satisfy the circumstances of their own airport and to ensure that these are promulgated. This may take the form of conditions of use of the airport.

9 Amendment

This document is continually subject to review and amendment if required. Suggestions for improvement should be addressed to:

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Chapter 1 General Principles of the Management of Health and Safety Airside

1 Introduction

- 1.1 Organisations operating on aerodromes need to manage aircraft safety and occupational health and safety with a great degree of expertise and to rigorous standards. However, without adequate safety management, legal and moral obligations cannot be met, and business losses may be incurred, including significant financial losses. Examples of such losses include:
- a) compromised aircraft safety and the potential for a catastrophic aircraft accident;
 - b) costs of replacing and compensating injured employees or others;
 - c) contractual penalties or loss of revenue if flights are delayed;
 - d) damaged assets (including aircraft and equipment);
 - e) loss of reputation;
 - f) loss of existing and future contracts.
- 1.2 Many of these losses will not be covered by insurance. Health and Safety Executive (HSE) studies have shown that the uninsured costs of accidents can be up to 36 times greater than the costs of insurance premiums¹. Furthermore, directors, managers and nominated postholders can be held personally accountable for failures to control aircraft safety and occupational health and safety.
- 1.3 The lessons learned from accidents to aircraft and people show that, in many cases, failures in management were a key causal factor. Chapters 1 and 3 of this document seek to summarise the processes by which aircraft safety and occupational health and safety can be managed.
- 1.4 Legal requirements are discussed in detail in paragraphs 2.1.1 to 2.4.3 and in Chapter 2. However, unless aircraft safety and occupational health and safety are adequately managed, it is unlikely that organisations' legal duties will be met.
- 1.5 The legal requirements in relation to aircraft safety are set out in the Air Navigation Order 2005 (ANO). The Health and Safety at Work etc Act 1974 (HSW Act) and the Management of Health and Safety at Work Regulations 1999 (MHSWR) set out the requirements to assure occupational health and safety. The ANO and MHSWR requirements are supported by codes of practice or regulatory requirements.
- 1.6 The regulatory requirements supporting the ANO in respect of aerodromes are principally contained in CAP 168 Licensing of Aerodromes. The MHSWR requirements are supported by an Approved Code of Practice (See paragraph 2.3.2).
- 1.7 There is also guidance from the regulators which illustrates good practice in relation to managing aircraft safety and occupational health and safety. The Civil Aviation Authority Safety Regulation Group (CAA SRG) has published a document, CAP 712 Safety Management Systems for Commercial Air Transport Operations. Although focusing on the safety management of aircraft flight operations, many of the principles illustrated are applicable to ground operations. In 1991, HSE published Successful Health and Safety Management (HSG65), which was revised and reissued

1. *The cost of accidents at work* HSE Books 1997 ISBN 0 7176 1343 7

in 1997. Although there are some differences in terminology, there are, of course, many parallels within this guidance material.

- 1.8 The key elements in a Safety Management System (SMS) acceptable to the CAA SRG are:
- Safety management policy and strategy
 - Safety assurance documentation
 - Safety assessment methodology
 - Safety auditing
- 1.9 HSG65 describes five key elements to health and safety management. All five steps are fundamental.
- Policy
 - Organising
 - Planning and implementing
 - Measuring performance
 - Auditing and reviewing performance
- 1.10 The precautions which protect aircraft from damage on the ramp often also protect people working on the ramp from harm, and vice versa. Consequently, the management of the health and safety of people (occupational health and safety) and the management of safety of aircraft share common themes. There are key elements which should form part of any system for managing safety:
- A system that sets the targets and standards to be achieved, and makes clear how people understand their responsibilities and accountabilities
 - A way of identifying hazards, assessing risks and introducing control measures
 - A method of monitoring that controls are in place and are effective. This should include proactive monitoring, such as inspection, reactive monitoring, such as accident investigation and data trend analysis, and audit and review of standards
 - Documenting the procedures outlined above and relevant key information, including policies, risk assessments and reports from monitoring activities
- 1.11 These basic principles underpin both HSG65 and SMS. However, there are some notable differences in the terminology used by CAA SRG and HSE when discussing safety management, as well as differences in the benchmarks which are applied and relative importance of some of the key elements involved. When developing an integrated airside safety management system that deals with both the risks to people and aircraft, it is necessary to recognise these differences. It does not follow that organisations require separate systems to manage the safety of aircraft and occupational health and safety, but organisations at aerodromes must keep in mind that a management system based on CAP 168 and SMS may not meet some of the standards in MHSWR and HSG65, and vice versa.
- 1.12 Furthermore, all the organisations and individuals involved should always be clear whether they are considering issues pertaining to aircraft safety, or occupational health and safety, or both, in order to prevent confusion arising.

- 1.13 Further guidance can be found in
- CAP 726 Guidance for developing and auditing a formal Safety Management System (CAA)
 - CAP 168 Licensing of Aerodromes (CAA)
 - Successful Health and Safety Management HSG65 (HSE)
 - Managing Health and Safety: Five steps to success INDG275 (HSE)

2 Key legal duties

2.1 Health and Safety

- 2.1.1 Every organisation at an aerodrome is subject to health and safety law. The duties under much of this law place responsibilities on employers, the self employed, organisations in control of workplaces and employees.
- 2.1.2 The duty of employers and the self-employed is to ensure, so far as is reasonably practicable, the health and safety of any individual who might be affected by any work activity within their control. The individuals who may be affected include employees, members of the public, contractors, visitors and other aerodrome users. Good health and safety management is key to ensuring that these duties are met.
- 2.1.3 Amongst other things, employers and the self employed need to provide places of work which are safe, provide and maintain work equipment and systems of work which will not cause injury, protect their employees and others from hazards to health, and provide welfare facilities for their employees.
- 2.1.4 Employers who share a workplace, whether temporarily (such as an aircraft stand) or permanently, must co-operate and co-ordinate their efforts to ensure a healthy and safe workplace.
- 2.1.5 Employers are also required to consult their employees, including any trade union safety representatives, on matters connected with their health and safety at work.
- 2.1.6 Organisations, such as landlords, that have some degree of control over workplaces which are made available to other employers as a place of work need to ensure that any premises, plant and equipment or substances that they provide for others to use are safe and without risks to health. This duty is qualified by the degree of control they have over the premises, plant, equipment or substances. As the extent of control increases, so does the degree of responsibility for the management of risks.
- 2.1.7 Every worker at an aerodrome has a duty to take reasonable care for their own health and safety and that of other persons who might be affected by what they do.

2.2 Aircraft Safety

- 2.2.1 Organisations may also have specific responsibilities to ensure aircraft safety. Good management of aircraft safety is vital if these responsibilities are to be discharged satisfactorily.
- 2.2.2 Key amongst these are:
- The responsibility of the aerodrome licensee (who may also be the aerodrome operator) to provide and maintain an aerodrome which is safe for aircraft to use
 - The responsibility of the aircraft operator (airline) to operate aircraft in a safe manner

2.2.3 Every individual at an aerodrome has a duty to do what they can to ensure that aircraft are not damaged.

2.2.4 The responsibilities for aircraft safety on the ground at aerodromes are essentially placed on the aerodrome operator. However, all aerodrome users, including aircraft operators, approved maintenance organisations and ground handlers, have a part to play in ensuring the safety of aircraft.

2.3 **Guidance and Codes of Practice**

2.3.1 Both HSE and CAA SRG have published extensive guidance to help organisations and individuals meet their legal duties, including their duties to manage the safety of people and aircraft. CAA SRG publishes Civil Aviation Publications (CAPs). HSE publishes priced publications such as guidance in the HSG series as well as free information sheets and leaflets.

2.3.2 Parts of the HSW Act and certain regulations enforced by HSE are supported by Approved Codes of Practice (ACOPs). These codes have special legal status. If an organisation is prosecuted for breaking health and safety law, and it is proved that it did not follow the relevant provisions of the ACOP, it will need to show that it has complied with the law in some other way, or the court will find it at fault.

2.4 **“So far as is reasonably practicable”**

2.4.1 Duties under the health and safety law are often qualified by the term “so far as is reasonably practicable” or “as low as reasonably practicable”. These terms are also sometimes used in relation to aircraft safety.

2.4.2 The term “so far as is reasonably practicable” has been defined by the Courts¹. To carry out a duty “so far as reasonably practicable” means that the degree of risk in a particular activity or environment can be balanced against the time, trouble, cost and physical difficulty of taking measures to avoid or reduce the risk. If these are so disproportionate to the risk that it would be unreasonable for the people concerned to have to incur them to prevent it, they are not obliged to do so.

2.4.3 Therefore, the greater the risk, the more reasonable it is to go to very substantial expense, trouble and invention to reduce it. But if the consequences and the extent of a risk are small, insistence on great expense would not be considered reasonable. It is important to remember that the judgement is an objective one and the size or financial position of the employer are immaterial.

2.5 **Risk assessment**

2.5.1 It is implicit when considering what is reasonably practicable, that hazards have to be identified and risks assessed.

2.5.2 The primary function of identifying the hazards and assessing the risks airside is to determine whether enough has been done to prevent an incident or accident that may lead to fatalities, injuries and ill health and/or damage to aircraft. In this way, risk assessments assist in determining whether enough has been done to meet the requirements of aviation law and health and safety legislation and are a key component in any system for managing aircraft safety and occupational health and safety.

2.5.3 Risk assessment can also indicate what improvements need to take priority, and thereby assist in developing budgets and business cases.

1. *Edwards vs NCB* [1949] 1 All ER 743

- 2.5.4 In brief, when undertaking a risk assessment the following key questions should be asked:
- What are the hazards to people and aircraft from the activity, location or task?
 - Who or what can be harmed and how?
 - What are the risks? Are they being controlled? If not, what more needs to be done, by whom, and by when?
 - Have the results of the assessment been recorded?
 - Does the assessment need to be reviewed and revised? When and how often?
- 2.5.5 To re-iterate, a hazard is anything which can cause harm or damage, a risk is the chance, great or small, that people or aircraft will be harmed or damaged by a hazard. This is a function of the likelihood (probability) that harm will occur and the severity of that harm.
- 2.5.6 Under health and safety law, consideration must be given to the risks to the health and safety of employees from other organisations, visitors, members of the public and anyone else who may be affected by the activity or task.
- 2.5.7 There are various sources of advice which may be consulted when considering whether existing precautions are adequate, and what additional precautions may be necessary. These include:
- CAA SRG and HSE guidance (see paragraph 1.14 and Chapter 2)
 - Industry codes of practice
 - Standards for comparable activities in other industries
 - The general principles for prevention (see below).
- 2.5.8 The general principles for prevention consist of a broad hierarchy of measures (as contained in Schedule 1 of MHSWR):
- Avoiding the risk
 - Evaluating those risks which cannot be avoided
 - Combating risks at source
 - Adapting the work to the individual
 - Adapting to technical progress
 - Replacing the dangerous by the non-dangerous or the less dangerous
 - Developing a coherent overall prevention policy which covers technology, organisation of work, working conditions, social relationships and the influence of factors relating to the working environment
 - Giving collective protective measures priority over individual protective measures
 - Giving appropriate instructions to staff.
- 2.5.9 In reality, a combination of such measures is likely to be required or be in place. Furthermore, precautions lower in the hierarchy (such as wheelchairs for disabled passengers that are specifically designed to be moved up stairs) may be used as a temporary control measure until other measures, higher in the list, can be implemented (such as the purchase and use of an 'ambulift').

2.5.10 However, in certain circumstances, the risk will not be acceptable until permanent control measures are in place. For example, it would not be acceptable to use only a system of work as a temporary measure to protect staff using a catering vehicle without means to prevent falls from the platform; the likelihood and consequences of a fall remain far too high.

2.5.11 Aerodrome operators should remember that the introduction of any measures which affect aircraft safety should be discussed with the CAA SRG at an early stage to ensure that licence conditions will continue to be met.

2.6 **Controlling your contractors**

2.6.1 The Courts have ruled that organisations retain some responsibility for health and safety during activities carried out by their contractors¹. These legal responsibilities cannot be delegated. Some aviation standards, such as JAR-OPS 1, require Air Operators Certificate holders to ensure that their contractors' standards are satisfactory.

2.6.2 There may also be benefits which accrue to those who develop partnerships with their contractors, for example by providing health and safety advice to them. HSE research shows that clients who established a partnership approach with their contractors found that it reduced business costs and losses².

2.6.3 However, reliance simply on standard contract clauses requiring contractors to comply with relevant legislation, standards or guidance is unlikely to be enough to secure such benefits or comply with legal requirements. All reasonably practicable steps should be taken to:

- a) check whether existing and prospective contractors' arrangements and organisation are adequate so as to ensure that they can carry out their tasks safely and without damaging aircraft or equipment, or risks to personnel;
- b) co-ordinate and control the work they carry out; and
- c) monitor their performance.

Assessing contractors

2.6.4 Assessment of contractors should use a number of criteria, including:

- a) At the pre-tender stage, obtaining details of relevant documents, for example the health and safety policy and copies of risk assessments for the work included in the contract;
- b) Interviewing short-listed contractors and/or visiting current work to assess standards, for example, driver training schemes and vehicle maintenance;
- c) Investigating past performance. Useful information can include references from current and former clients, internal audits and inspections against the aerodrome operator's safety management system, and/or the results of any audits undertaken by the aerodrome operator or another third party; and
- d) Monitoring performance throughout the term of the contract.

1. *Edwards vs NCB* [1949] 1 All ER 743

2. *R vs Associated Octel Co Ltd* [1996] 1 WLR 1543

Co-ordinating and controlling performance

2.6.5 This can be achieved through a combination of:

- a) Appointing a supervisor to oversee the activity, especially in relation to aircraft turnround. This could be a member of staff, or a nominated agent. They should have sufficient authority to control the activities involved. For most construction work it is a legal requirement to appoint a principal contractor, one of whose functions is to oversee the conduct of the work;
- b) Agreeing and writing down a plan for the activity. For construction work, a health and safety plan may be required by health and safety law. For aircraft turnround, it is best practice for a plan for the turnround to be developed and agreed between those involved. The supervisor for the activity should work to the plan. Further advice on the plan for the turnround is given in Chapter 2 paragraphs 6.3.1 to 6.3.6;
- c) Undertaking joint risk assessments of the process. These assessments could inform the performance standards and the plan. Joint risk assessments will need to take account of differences between companies' management, supervision, equipment and training. However, it is important that they do not lead to inadequate standards for any of the people and companies using them; and
- d) Agreeing performance standards, for example, frequency of vehicle maintenance and standards for training and refresher training. These may be set through reference to standards imposed on the client and contractor organisations by the aerodrome operator.

Performance monitoring

2.6.6 To be effective, performance monitoring should consider several factors, such as:

- Methods of work: Standing instructions or method statements for the contractors' staff should be clear. How can you confirm that the plan for the activity is being followed? What procedures are in place to monitor compliance?
- The foreseeable risks of the activity should be identified and managed. For example, are measures in place to prevent falls from heights or vehicles striking aircraft? How are these risks identified? How are the mitigation measures determined and put in place?
- Aerodrome rules should be clear to all working on the aerodrome. What procedures are in place to ensure that these rules are complied with? For example, how do you know that contractors' employees are wearing hi-visibility (hi-viz) clothing?
- Methods of identifying, reporting and recording deviations from instructions and rules should be clear. What methods are in place to identify and monitor trends in these deviations?

2.6.7 The people monitoring performance should be trained to identify unsafe practices and should have enough resources, including time, to carry out the work.

Control of contractors during turnround

2.6.8 The use of contractors at aerodromes to provide services for aircraft is increasing. At many aerodromes, airlines or aircraft operators are the clients for turnround services. They may employ contractors directly or utilise the services of a handling agent, who subcontracts the provision of individual services during aircraft turnround. There may be a mix of service providers, some contracted locally, others on the basis of international contracts.

- 2.6.9 Whatever the arrangements, the airline/operator should consider the elements discussed in paragraphs 2.6.1 to 2.6.8. Further advice on the management of safety during turnround can be found in the HSE publication Aircraft Turnround (HSG209).

Responsibilities of different companies at aerodromes

- 2.6.10 The legal duties outlined above can have different effects on the different organisations at an aerodrome, depending on what they do and the differing operations they control. It should be noted that health and safety law applies to all employers, self-employed workers and employees at an aerodrome, whereas the law and standards on aircraft safety tend to focus on particular licence holders or individuals.

Aerodrome operator (licensee)

- 2.6.11 The duty of the aerodrome operator (who is usually the aerodrome licensee) is to provide and maintain an aerodrome which is safe for aircraft and people to use.
- 2.6.12 In relation to aircraft safety, an Aerodrome Licence is issued by CAA SRG when they are satisfied that the prospective aerodrome operator is competent in operating the aerodrome in such a way as to ensure the safety of aircraft. This includes not only the physical layout of the aerodrome, but a variety of other elements that can affect aircraft safety. ANO Article 128 sets out the legal requirements and obligations for the grant of an Aerodrome Licence.
- 2.6.13 Every Aerodrome Licensee is required to maintain an Aerodrome Manual, an integral part of the aerodrome operator's system to manage safety. The Aerodrome Manual complements the aerodrome operator's approach to quality management, including the management of the business, customer critical processes and health and safety. ANO Article 128 requires that the Aerodrome Manual contains all necessary information and instructions to enable the aerodrome operating staff to perform their duties and sets out, in Schedule 13 to the Order, information and instructions that are to be included in the Aerodrome Manual. The Aerodrome Manual should be disseminated widely so that everyone who undertakes tasks that can affect aircraft safety is familiar with the relevant parts of the document.
- 2.6.14 The standard of occupational health and safety is not considered as part of the Aerodrome Licence, and HSE do not license aerodrome operators. Nevertheless, a similar duty exists under occupational health and safety regulations. The aerodrome operator must provide an aerodrome which is safe for people to use, as far as reasonably practicable.
- 2.6.15 This includes:
- an aerodrome layout which is safe, for example such that pedestrians and vehicles can move about safely
 - equipment provided by the aerodrome operator which is safe, for example airbridges and fixed electrical ground power
 - systems of work which ensure safety, such as hotwork permits.
- 2.6.16 The people who need to be protected include the aerodrome operator's own employees, the staff of contractors and tenants, visitors, members of the travelling public and their friends and relatives, and other members of the public, such as spectators.

2.6.17 Many precautions will protect both people and aircraft, these include:

- Properly planned and adequately maintained infrastructure
- Adequate standards of specification and maintenance of equipment which interfaces with the aircraft
- Adequate standards of specification and maintenance for vehicles, whether directly serving aircraft or not
- Adequate driver and operator training
- Properly planned and executed aircraft turnrounds
- Good co-operation and co-ordination between all aerodrome users.

2.6.18 As the central organisation at the aerodrome, the aerodrome operator has a key role in developing co-operation and co-ordination between all the users of the aerodrome. It may consider establishing committees or other discussion groups for setting aerodrome-wide health and safety standards or agreements, for example. The primary aim of such groups should be to improve the co-operation and co-ordination between the various organisations operating at the aerodrome.

2.6.19 The operators of aerodromes should also take a proactive role in monitoring standards, for example by introducing aerodrome wide safety assurance systems or audits of companies working at their aerodrome. The implementation of a ground operator licensing system may be a suitable solution at some aerodromes. Those aerodromes which have the power to make byelaws should consider taking positive action against organisations or persons that consistently breach their requirements.

Aircraft Operators (Airlines)

2.6.20 The operator of the aircraft (usually the airline) will need to consider the health and safety of persons not in its employ who are affected by its activities or the activities of its contractors, as well as that of its own employees. It also needs to consider the risks to the safety of its aircraft.

2.6.21 Where an airline employs contractors, it should consider the elements in paragraphs 2.6.1 to 2.6.8.

2.6.22 Airlines may decide to co-operate with each other, the aerodrome operator and service providers to agree uniform standards for arrangements, performance and monitoring. This may reduce the time and effort required for individual airlines to develop such standards.

Service Providers

2.6.23 All contractors on the apron have to work quickly to complete their respective tasks in the time allowed for aircraft turnround. However, all those involved should take adequate account of each other's safety needs, for instance catering or baggage vehicles should not block the escape path of a refuelling vehicle, but this vehicle should not be parked in such a way as to hinder or prevent other vehicles having safe access to the aircraft.

2.6.24 Where a handling agent has been appointed, service providers should co-ordinate with them to ensure that safety procedures are understood and implemented by the handling agent. They should be working to an agreed plan for the turnround and each service provider should ensure that they have a copy of this plan. In addition, each service provider should have a supervisor or leading hand who can control the various stages of its contribution to the turnround.

- 2.6.25 Where there is no handling agent it is important that there is still someone in control of the work and an agreed plan for the turnaround. Where this creates problems, these should be raised with the airline, aerodrome operator or other service providers, as appropriate.
- 2.6.26 Service providers should ensure that any subcontractors they engage undergo the assessment, control and monitoring processes outlined in paragraphs 2.6.1 to 2.6.10.

3 Interface between HSE and CAA SRG

- 3.1 Both CAA SRG and HSE have a role within the aviation industry; CAA SRG in relation to the safety of aircraft and HSE in relation to the health and safety of people. Clearly, there is a potential for duplication of regulatory effort. CAA SRG and HSE are committed to co-operate so as to minimise duplication of effort, and conflicting demands.
- 3.2 With this in mind, a Memorandum of Understanding (MoU) has been drawn up between CAA SRG and HSE which sets out a framework for liaison between the two organisations. Specifically, the MoU aims to ensure co-ordination of policy issues, enforcement activity and investigation in respect of aircraft and the systems in which they operate. The MoU is overseen by a Joint Co-ordination Group consisting of representatives from CAA SRG and HSE.
- 3.3 The MoU outlines the legislative framework under which both organisations work, describes the CAA SRG/HSE Joint Co-ordination Group's responsibilities in terms of reviewing the working of the MoU and describes the joint working arrangements. Annexes to the MoU cover specific areas of aviation activity. The full text of the MoU and associated annexes can be found on HSE's website at www.hse.gov.uk and CAA's website at www.caa.co.uk.
- 3.4 Questions about the MoU or the annexes should be sent to hse.caa.mou@hse.gsi.gov.uk at the HSE or HSE-SRGMou@srg.caa.co.uk at CAA SRG.

Chapter 2 Managing the risks

1 Introduction

- 1.1 Particularly at large aerodromes the apron is a busy place of work. People and aircraft face many potential hazards, particularly from the movement and operation of aircraft and ground vehicles. Failure to eliminate or control such hazards may lead to accidents to aircraft and/or people or cases of ill health.
- 1.2 It is recognised that much of the guidance below may appear to be geared towards large aerodromes. However, safety management of the apron will apply to any aerodrome, regardless of size, only the range and magnitude of operations will vary. Managers will need to consider the degree of applicability of the detailed material presented in this Chapter and, indeed, the use of any suitable control measures additional to those described. The hierarchy of controls outlined in Chapter 1 paragraph 2.5.8 should be kept in mind when considering the most appropriate combination of control measures.

2 Potential Hazards on the Apron

- 2.1 This section discusses some of the potential hazards commonly encountered on the apron. It is important that all aircraft operations, including turnround times should take full account of the need for safe working practices. Failure to do this may result in short cuts and bad practice which can lead to accidents, ill health and damage to assets.
- 2.2 Common hazards at aerodromes which are discussed in the following paragraphs, include:
- Vehicles striking aircraft and/or people
 - Hazards to passengers on the apron
 - Moving aircraft (including aircraft on pushback or being towed)
 - Live aircraft engines (including helicopters)
 - Falls and falling objects
 - Operation of airbridges
 - Manual handling
 - Noise
 - Work equipment (including machinery)
 - Hazardous substances and Dangerous Goods (including radioactive substances)
 - Inadequate lighting, glare or confusing lights
 - Adverse weather conditions (including winter operations)
 - Slips and trips
 - Electrical hazards
 - Faults and defects

- 2.3 Dealing effectively with these hazards will require good management of aircraft safety and occupational health and safety, as well as co-operation and co-ordination between the aerodrome operator, ground handlers, airlines and other aerodrome users, such as maintenance contractors. Initiatives for reducing the risk to health and safety from these hazards should also form part of the Aerodrome Operator's Master Plan and should be an integral part of the planning of individual projects (see Chapter 3 for further guidance on airside development planning).

3 Vehicles Striking aircraft and/or People

- 3.1 Airside vehicles constitute an ever present hazard to both people and aircraft and extreme vigilance is necessary for all those working airside. It may be possible to eliminate the risks to people in certain areas of the aerodrome by keeping vehicles and pedestrians apart where possible, by the use of passenger boarding bridges (airbridges), for example. When this is not reasonably practicable, another method of dealing with the problem is the provision of separate designated routes, such as pavements or marked walkways. Well organised traffic routes, including one-way systems, adequate lighting to roads and unambiguous road markings can also assist.
- 3.2 It may not be possible to ensure complete segregation of aircraft, pedestrians and vehicles in all areas of the aerodrome. However, this does not mean that the whole idea of segregation can be abandoned. In those areas where segregation of aircraft, people and vehicles can be put in place, it should be.
- 3.3 Where segregation is not reasonably practicable, there are other measures which can be employed to reduce and minimise the risk. For example, it may be possible to re-organise the layout of an area, so that the interaction of pedestrians, aircraft and vehicles is minimised, or the frequency of high risk activities such as reversing are reduced. Any changes to the layout of an aerodrome which affect aircraft safety should be discussed with CAA SRG at an early stage, as the aerodrome licence conditions may be affected.
- 3.4 Paragraphs 4.1 to 4.5 provide further advice on protecting passengers on the apron.
- 3.5 Some aerodromes have service delivery systems built into the stands, thus reducing the number of vehicles that have to attend an aircraft. However, such systems are rare and in most cases other methods will need to be considered. Even if such systems are installed it is important that safe contingency procedures are available to cater for equipment failure.
- 3.6 Even with such physical measures in place, a safe system of work should be developed. This provides an opportunity for partnership in planning involving all those with a direct interest in aircraft safety and occupational health and safety on the apron. Such a system should include:
- Traffic rules governing such issues as speed limits, especially on approach to aircraft and in the vicinity of people
 - Correct vehicle maintenance, especially of safety critical components such as brakes and steering
 - Driver training and refresher training
 - Driving standards
 - Competence/attitude of drivers
 - Apron management

- Provision of assistance and/or audible warning devices for reversing vehicles (although such audible warning devices might not be fully effective in the vicinity of high ambient noises, or if people are wearing hearing protection)
 - Procurement of suitable vehicles, e.g. vehicles offering good driver vision
 - Regular monitoring of standards
 - Safe parking of vehicles in such a way as to prevent interference with aircraft manoeuvring or other aerodrome users
 - Encouragement of good practice
 - The provision and wearing of high visibility clothing
- 3.7 Where more than one company is attending an aircraft, effective co-ordination and co-operation of contractors is essential to prevent vehicles striking people, other vehicles, equipment or aircraft. Airlines and aerodrome operators have a key role in this as part of their systems for assessing, controlling and monitoring their contractors. The turnround plan is likely to be a key document in ensuring that vehicle movements are controlled around aircraft. Paragraphs 6.3.1 to 6.3.6 give further advice on the turnround plan.
- 3.8 It is likely that a combination of measures, including segregation of people from vehicles and other hazards where reasonably practicable, will be required to control the risks. The exact combination may vary with location, activities and perhaps even the time of day. The effects of changes to the aerodrome, for example due to temporary works or the effect of new buildings will need to be considered, preferably at an early stage. Consequently, it is important that the risks from vehicles are assessed, as part of an overall system for managing aircraft safety and occupational health and safety.
- 3.9 Relevant legislation on the risks from vehicles includes the ANO, the HSW Act, MHSWR, PUWER, the Workplace (Health, Safety and Welfare) Regulations 1992 and, at some aerodromes, aerodrome byelaws.
- 3.10 Advice on aerodrome signage is given in paragraphs 6.9.1 to 6.9.7. Further advice on equipment, including vehicles is given in paragraphs 12.1.1 to 12.4.4, and guidance on lighting is given in paragraphs 14.1 to 14.14.

4 Hazards to passengers on the apron

- 4.1 At aerodromes passengers may have to walk across the apron between the terminal building and the aircraft. This may expose passengers to hazards such as vehicles moving across the apron. The risks of injury are increased as passengers are vulnerable and generally unaware of the dangers around them. Furthermore, passengers may inadvertently (or even deliberately) damage aircraft. The aerodrome operator, the airline operator and ground handlers all have responsibility for ensuring that the movement of passengers is strictly supervised and controlled.
- 4.2 Under health and safety law and aviation law, the aerodrome operator has a responsibility to provide an aerodrome that is safe for its users. In designing the aerodrome layout and facilities, the aerodrome operator is able to make a significant contribution to the safety of passengers. For example, when the aerodrome operator provides airbridges, passengers are not exposed to any of the hazards on the apron. Where the provision of airbridges is not reasonably practicable, the aerodrome operator should ensure that the layout and marking of airside areas enables the safe

movement of passengers to and from the terminal areas. The guidance in the preceding section is particularly relevant in this regard.

4.3 The steps that can be taken to ensure passenger health and safety on the apron will vary from aerodrome to aerodrome and from stand to stand, but will include the following measures:

- a) Passengers should not be permitted to roam free;
- b) Where possible, the aerodrome operator should ensure that permanent traffic routes, e.g. aerodrome roads or taxiways, do not dissect the path between the terminal and the aircraft;
- c) Where this is not possible the aerodrome operator should provide safe routes marked on the apron surface (including safe crossing points for the apron roads) and clear, unambiguous signs to indicate the route to be followed. Positive control of vehicular traffic may be required from the airline or handling agent; co-ordination and co-operation with the aerodrome operator may be necessary to achieve this;
- d) Safe routes can also be indicated by the use of moveable barriers and chains ('Tensator' type devices) to create a temporary safe route across the apron for passengers to follow. When not in use, it is important that such equipment is properly stowed to ensure that it does not become a source of FOD;
- e) Routes to the aircraft should not pass below aircraft wings or beneath fuel vents, or close to propellers or rotors of the aircraft they are boarding/disembarking or those of aircraft on adjacent stands. Routes should also be clear of vehicular traffic around the aircraft, electrical cables, fuel hoses and other ramp equipment;
- f) Restrictions should be placed on the running of aircraft engines in the vicinity of passengers and positive measures should be taken to protect them from excessive engine noise and jet blast;
- g) Staff should be positioned on the apron to ensure that passengers follow a safe path to the terminal/aircraft. If necessary, passengers should be led from the aircraft or terminal;
- h) Passengers should be informed of the safe route they should follow into the terminal/aircraft, e.g. by public announcement before they leave the aircraft/terminal;
- i) For remote stands or stands in a different location to the terminal lounge, passengers should be transported to the aircraft by bus; and
- j) Information on embarking and disembarking passengers could form part of the turnround plan (see paragraphs 6.3.1 to 6.3.6 for further guidance on the turnround plan).

4.4 Relying solely on informing passengers of safe routes and marking them out is unlikely to be adequate for commercial passenger operations. Whenever passengers are to walk across the apron there should be sufficient staff to ensure that passengers do not wander away from safe routes. If there are insufficient staff, then passengers may need to be disembarked or boarded in small groups which can be adequately controlled by the available staff.

4.5 Responsibility for ensuring that passengers are safeguarded between the aircraft and the terminal building is shared between the airline, aerodrome operator and any ground handlers involved. It is vital that it is clear who is responsible for providing staff to supervise and/or escort passengers across the apron, and that sufficient numbers of staff are provided. Clearly, any contracts will need to take this into account. Failure

to supervise passengers properly may lead to accidents with serious consequences for all involved.

- 4.6 Consideration should be given to unusual circumstances, such as evacuation of terminal buildings or aircraft, in which passengers and other members of the public may be required to enter airside areas. Procedures should ensure that responsible persons who are familiar with the hazards that exist in airside areas are present to supervise passengers and members of the public as soon as practicable wherever there is emergency egress. Consideration should also be given to methods by which aircraft movement and other sources of hazard may be stopped in areas in which passengers and members of the public may congregate with limited supervision.

5 Moving Aircraft

- 5.1 The movement of aircraft on the ground, either under their own power or towed, creates a number of hazards that are unique to the aviation industry. In particular operating jet or propeller engines can cause fatal or serious injuries and extensive damage to equipment or other aircraft.
- 5.2 The appendices to this Chapter consist of a series of model safety instructions which are constructed to include relevant points or issues of the described operation. The models are offered for consideration as a strong basis for the drafting of suitable instructions for each individual aerodrome's own operation.

6 Aircraft Parking Safety Practices

6.1 Operation of the stand

- 6.1.1 The following paragraphs describe typical responsibilities and accountabilities for the operation of aircraft on and off stand. Relationships might vary from aerodrome to aerodrome due to differing contractual arrangements or other owner/operator agreements. Each aerodrome must establish its own hierarchy of responsibilities and then work to establish agreed safe working practices within that framework.
- 6.1.2 The aerodrome operator is responsible for the rules and procedures that safeguard the arrival and departure movements of aircraft on stands and for the dissemination of information to airline/company operators. Information documents/instructions and requirements should be based upon the subjects described in the following paragraphs.

6.2 Visual Docking Guidance System (VDGS)

- 6.2.1 Where a VDGS is provided, the aerodrome operator should arrange for the stopping guidance element to be calibrated and indicated, for all selected user aircraft, in a clear and unambiguous fashion. The azimuth guidance should be regularly checked for accuracy. Such systems should be subject to daily serviceability checks, the results of which should be recorded. Details of the VDGS available at the aerodrome should be promulgated in the UK Aeronautical Information Publication.

6.3 'Ownership' of Stand/Parking Bay

- 6.3.1 In general the aerodrome operator has the responsibility to ensure that aircraft stands remain serviceable, clean and free from obstruction. However, in the busy operation of the apron, with minute to minute changes of status and vehicle/equipment movements, there will also be specific responsibilities for handling staff.

- 6.3.2 When a stand is allocated for use to an aircraft operator and the arrival of their aircraft on stand is imminent, it is usually the responsibility of the handling staff to ensure that the stand and clearways are free from obstruction by vehicles or equipment. These staff should also ensure that the airbridge(s) is (are) fully retracted or correctly parked with the drive wheels in the parking box provided (see paragraphs 9.7 to 9.10) before the arrival of the aircraft. These actions must be completed by the handler before the VDGS is switched on. Switching on the VDGS will normally signify to the aircraft commander that these actions have been completed and it is safe for the aircraft to enter the stand. Once the VDGS is switched on, the stand must remain under supervision until the aircraft arrives on stand in order to ensure that it remains safe for use by the aircraft. If for any reason the stand becomes 'unsafe' or unattended before the aircraft has arrived on stand the VDGS should be switched off or 'STOP' indicated using the Emergency Stop System if necessary.
- 6.3.3 A supervisor should be nominated to control and manage the various states of the operation and should be clearly identified to all staff working on the stand. The supervisor should be working to an agreed plan for the turnround and should have sufficient authority to control the activities around the aircraft. The supervisor should be present throughout the arrival, handling and departure procedures.
- 6.3.4 The plan for the turnround should describe how the turnround will be carried out. It should enable every person involved to carry out their work safely and without endangering others or the aircraft. All the companies involved should have a copy of the plan and have accepted their roles and responsibilities. Points to consider in the plan include:
- a) how the supervisor for the turnround or handling agent will carry out their work;
 - b) common arrangements, such as what to do in an emergency and minimum personal protective equipment needs;
 - c) the signal that it is safe for vehicles, equipment and people to approach the aircraft;
 - d) the order in which they should approach;
 - e) the positions they should take up, to make sure everyone can get to and from the aircraft safely and without damaging the aircraft;
 - f) any differences between aircraft and stands which affect how the turnround should be carried out; and
 - g) ensuring clear and rapid egress for aircraft refuelling vehicles.
- 6.3.5 When turnround operations have been completed and the aircraft is ready to depart airline staff should ensure that the stand is free from obstruction by vehicles and equipment before push-back commences. (Airbridge positioning is covered in paragraph 6.3.2).
- 6.3.6 Before leaving the stand handling staff must ensure that the VDGS is switched off.

6.4 Aircraft Parking Safety Considerations

- 6.4.1 In general, some of the greatest threats to the safety of an arriving aircraft are carelessly driven vehicles, indiscriminately parked or stowed ground equipment and misleading markings or signals. Guidance for vehicle operations are contained in Chapter 4 of this publication. Ground equipment should be/remain parked in the equipment areas provided, service vehicles and baggage trolleys should hold clear and equipment such as ground power units, or any other gear with trailing cables or hoses should be fully retracted and stowed. The stand must be clear of all obstructions when an aircraft is in motion. Other considerations for the safe docking and parking of an aircraft are described in the following paragraphs. In areas or stands

that can accommodate a number of variations of aircraft parking arrangements there are often complex signs or markings, only some of which are appropriate for specific aircraft. It is important to minimise the possibility of this information being misinterpreted by a pilot by ensuring that information that is not relevant for a particular aircraft is suppressed if possible, and that all staff who may be involved in activities in the area are fully trained in the appropriate configuration for all aircraft types that may use the stand.

Control of the Operation

- 6.4.2 Handling staff are responsible for many aspects of the control of the parking/docking operation once the aircraft has entered the stand, although where a marshaller is responsible for guiding the aircraft on to the stand local instructions should clearly indicate the point at which responsibility is transferred from the marshaller to the handling staff. The nominated supervisor should control the progress of the operation and the actions of the handling team.

Brakes/Chocks

- 6.4.3 On arrival, when the aircraft is positioned to the pilot's satisfaction and finally stopped, the appropriate aircraft wheelbrakes should be engaged by the pilot until the aircraft has been safely and properly chocked (emergency situations such as dangerously hot or failed brakes will need to be dealt with under company procedures). Wheel chocks should not be inserted until the pilot has indicated that the aircraft has finally stopped, and any propellers have stopped turning. In addition to hand signals, the pilot of a jet-engined aircraft will commonly indicate that it is safe to insert chocks by shutting down the engines. To avoid the possibility of the aircraft climbing its chocks, or chocks being ejected, ground stopmarks should not be used as a positive indication to insert chocks or that the aircraft has reached its final position. When not in use chocks should be safely stowed and not left on the apron surface.
- 6.4.4 A model Instruction that may be suitable for issue by an Aerodrome Authority dealing with Aircraft Chocking is included at Appendix A to this Chapter.

Flap and Control Surface Movement

- 6.4.5 Staff should be aware of the dangers of the movement of aircraft flaps and other underwing devices when an aircraft is on stand. These areas should be avoided by staff and vehicles and equipment should not be driven or parked in such a way that damage would be caused by flap and other control surface movements.

Wheels

- 6.4.6 When an aircraft is in motion staff should keep well clear of all wheels to avoid becoming trapped. When an aircraft arrives on stand, tyres and particularly brake assemblies can remain very hot for some time. Ramp staff should exercise care when required to work in the vicinity of aircraft wheels. Where there is some free movement of aircraft wheels, care must be exercised to ensure that clothing and hands or feet do not become trapped.

Control of passengers

- 6.4.7 See paragraphs 4.1 to 4.5.

Marshalling of aircraft

- 6.4.8 The marshalling service is normally, but not necessarily exclusively, provided by the aerodrome operator. The principal considerations are as follows.
- a) The aerodrome operator as part of its safety management system should provide for the training, testing and authorisation of aircraft marshallers. Standard marshalling

signals, as laid down in the 'Rules of the Air Regulations 1996', Rule 47, should be employed. Only trained, experienced marshallers in regular marshalling practice should be permitted to marshal aircraft unsupervised;

- b) Except where full self manoeuvring is permitted, a marshalling service should be provided automatically on stands not equipped with VDGS or where the VDGS, or other stand facilities have known unserviceabilities. A marshalling service should also be available on request;
- c) In certain circumstances, such as a non-standard taxiway routing or on request from a visiting pilot, unfamiliar with the aerodrome, and/or in poor visibility, a 'Follow me' vehicle should lead the pilot to a marshaller or his parking place directly.

Fixed Electrical Ground Power (FEGP)/Auxiliary Power Units (APU)/Ground Power Units (GPU)

- 6.4.9 To reduce noise and contamination from oil and exhaust emissions, the running of all types of engines on the apron should be kept to the minimum necessary to maintain operational needs. Where FEGP units are provided on stands they should be used in preference to other forms of auxiliary power. The running of aircraft Auxiliary Power Units (APUs) and engine driven Ground Power Units (GPUs) should be strictly controlled to the minimum operational requirement. Airlines should be encouraged to use GPUs with the quietest engines available. At large aerodromes consideration can be given to the provision, on stand, of preconditioned air units to reduce the running of APUs for cabin conditioning.
- 6.4.10 Further advice is given in the sections on Noise (paragraphs 11.1 to 11.7), Slips and Trips (paragraphs 16.1 to 16.5) and Electrical hazards (paragraphs 17.1 to 17.8).

6.5 Aircraft Arrival

Safety of the Stand

- 6.5.1 Fundamental to the safe, smooth and professional management of an aircraft movement is the timely attendance of the dispatcher/airbridge operator to initiate those actions necessary to promote a safe arrival sequence. A full functional check of the airbridge should be completed in good time before the aircraft arrives. To maintain aircraft and personnel safety and to ensure that the prescribed safe clearances between aircraft and bridge are maintained the following precautions should be observed:
 - a) Before the aircraft enters the stand, ensure by personal visual inspection that there are no potential hazards to a safe parking operation;
 - b) Before the aircraft enters the stand, the drive wheels of an apron-drive bridge must be positioned in the marked parking box provided or, in the case of a rail-drive airbridge, must be fully retracted;
 - c) Before the aircraft enters the stand, confirm that the stand is set up for the approaching aircraft type;
 - d) A careful check should be made to ensure that no vehicles or equipment are obstructing the horizontal or vertical movement of the bridge while ensuring that the airbridge remains in the appropriate position;
 - e) The airbridge cab should be adjusted vertically and in azimuth to suit the incoming aircraft type;

- f) Only when the aircraft has stopped; the wheel chocks are in place; the engines have run down and the aircraft anti-collision beacon has been extinguished, can the airbridge be driven from its parking position and docked to the aircraft;
- g) The aircraft passenger door should remain closed until the airbridge had been docked, the canopy has been lowered on to the fuselage and the autoleveller device has been set;
- h) The airbridge operator should remain in attendance in the cab until passenger disembarkation is completed.

6.5.2 Further advice on airbridges is given in paragraphs 9.1 to 9.19.

Emergency Stop System

6.5.3 In order to deal with no-notice contingencies, failures and emergency situations on nose-in stands, consideration should be given to an indicator system to warn the pilot to make an emergency stop. Where signs are provided they should be easily and immediately visible to pilots. The sign should be conspicuous and may take the form of a red flashing electronic warning sign indicating EMERGENCY STOP or STOP. The emergency stop warning device should be readily accessible and be capable of being activated quickly both from the airbridge cab and from apron level.

Stop Short System

6.5.4 On stands equipped with VDGS, an indicator system should be provided to advise the pilot to Stop Short; this is normally because the airbridge is unserviceable and passenger steps must be used. Other unserviceabilities or works at the head of stand may also give rise to Stop Short conditions. The Stop Short indication may be an electronic sign associated with the VDGS display, or conspicuous painted signs may be used, normally fixed to the airbridge. In Stop Short conditions a marshalling service should be provided.

Location of Controls

6.5.5 The determination of the best positions for VDGS, Stop Short and Emergency Stop switches may vary from aerodrome to aerodrome, or even from stand to stand. However, it should be an objective of the safety system to standardise the location of switches on all stands at a particular aerodrome. The following locations offer the best control positions:

- a) Emergency Stop switches: One gated switch located in the airbridge cab and clearly marked. A second gated switch, working in parallel with the first, located in a prominent and easily reached position at the head of stand and conspicuously marked. A responsible person should be positioned adjacent to each switch provided until the aircraft has successfully parked.
- b) Stop Short and VDGS Switches: These switches can be grouped together. One set of switches should be located in the airbridge cab and clearly marked. A second set of switches working in parallel with the first should be located at a prominent easily reached position at stand level and conspicuously marked. Which of these positions is the primary VDGS switching position will depend on which position gives the operator the best view of the stand area.

NOTE: It is important the VDGS controls are located in a position such that the operator has an unimpeded view of the specific apron parking position whilst the controls are being used.

6.6 Aircraft Departure

6.6.1 To avoid damage and to maintain the prescribed safe clearance from the airbridge the following precautions must be observed before aircraft push back is initiated:

- a) The aircraft passenger door must be closed;
- b) The airbridge canopy and autoleveller must be retracted;
- c) The airbridge safety barrier should be erected or the doors should be closed;
- d) An apron drive bridge should be withdrawn and the drive wheels placed in the parking box provided;
- e) A rail drive bridge should be fully retracted; and
- f) A check should be made that there are no vehicles, equipment or personnel obstructing the movement of the airbridge before it is moved. A check should also be made to confirm that the ground equipment is configured to meet any specific settings for the aircraft type.

6.6.2 Model operating procedures that may be suitable for issue by an Aerodrome Authority dealing with the use of a Visual Docking Guidance System are included at Appendix B to this Chapter.

6.7 Self-maneuvring of aircraft on the apron

Stand Configurations

6.7.1 Self-maneuvring is a procedure whereby an aircraft enters an apron, parks and subsequently departs, at all times under its own power. The principal methods of stand configuration are angled nose-in, angled nose-out and parallel-parking; each method involves the adjacent apron area in being subjected to high levels of engine blast, noise and fumes at some stage of an aircraft movement. Taxi-through stands can also be used for self-maneuvring and the blast effects are relatively less, but opportunities for this layout are generally few.

6.7.2 Self-maneuvring operations offer a saving on aircraft tugs and ground crews but the layout of stands requires approximately double the apron area of conventional nose-in push-back operations. Due to the relatively high levels of engine power likely to be used for self-maneuvring, there is an increased potential safety threat to buildings, installations, vehicles, equipment and personnel and passengers which must be controlled and managed.

6.7.3 Before deciding to adopt self-maneuvring operations aerodromes should consider other methods of aircraft handling. Self-maneuvring on open, unmarked aprons should be subject to special procedures and a marshalling service should be available at all times on aircraft arrival. The aerodrome operator should determine which combination of aircraft stands and conditions require a marshalling service on departure.

Safety Considerations

6.7.4 Where self-maneuvring is employed aerodrome operators should ensure that the following arrangements and requirements are met:

- a) Stand entry routes, parking positions and departure routes should be marked with standard paint markings, in accordance with the appropriate standards;
- b) Buildings and installations adjacent to self-maneuvring stands should be constructed to withstand the engine blast or be protected by blast screening;

- c) Vehicles and equipment should not be placed in a position where they can be affected by blast; equipment parking areas should be protected by blast screens or located remote from the stands;
- d) Passenger areas and apron staff working areas should be protected by blast screens. Passengers should not be subjected to blast, excessive noise or fumes;
- e) Safety instructions should be issued, specifying the maximum aircraft sizes to be permitted on individual stands so as to ensure that the prescribed safe clearances are maintained. Pilots should also be required to exercise caution and use the minimum engine power settings needed to complete a satisfactory manoeuvre;
- f) Self-maneuvring stands should be inspected regularly and kept clear of any FOD in order to minimise the risk of ingestion.

6.8 **Aircraft departure**

6.8.1 Aircraft departure is a critical phase of any flight, with loaded aircraft operating at heavy all-up-weights. Notwithstanding the pressures that often call for expeditious movement to meet schedules, clearances and 'slot' allocations, the safe management of departure procedures is paramount. Aircraft that use the aerodrome only infrequently may require special attention from handling agents because procedures may not exist for the specific aircraft type or variant. For example, written instructions should be requested by ground crews loading cargo or baggage onto aircraft with which they are not familiar. For the purposes of this section the departure phase is considered to be from the time the aircraft starts an engine, or push-back movement starts if earlier, to the point where taxi clearance is issued by ATC. Guidance covering the various methods of aircraft departure is given in the following paragraphs.

Push-back Procedures

6.8.2 Aircraft push-back operations have the potential for accidents involving personal injury/fatalities for ground crews and damage to aircraft, vehicles and equipment. As part of their safety management system, aerodrome operators should establish and promulgate general rules and requirements for the safe conduct of push-back operations. The development of detailed procedures, within the guidelines issued, may remain the responsibility of airline operators/handling agents. Aerodrome operators should maintain safety management arrangements to audit compliance with push-back requirements. When considering rules for push-backs the following should be taken into account:

- a) Detailed, written operating procedures should be produced by airline operators/handling agents for use by their staff. These procedures should ensure the safety of the aircraft and the personnel involved;
- b) Unless required to ensure the safety of the aircraft, all personnel involved should stay within the aircraft tug. Any personnel working outside the aircraft tug, such as those 'walking the nose wheel', are particularly vulnerable to injury;
- c) All tug drivers should be qualified to drive aircraft tugs in all weather conditions. They should be trained in these procedures and certificated as competent by a training officer, nominated and named by the airline management. Push-back crews should be thoroughly familiar with push-back procedures;
- d) Push-back supervisors should be nominated, trained and certificated as competent, as in c) above;
- e) The supervisor should, ideally, be in speech contact with the flight deck crew throughout the push-back. Where there is a possibility that speech communication

will not be available for any reason, the supervisor should be trained to use internationally agreed hand signals;

- f) Where risk assessment has shown it to be advisable, 'tail look-out' and/or 'wing-walkers' should be used to safeguard the rearward movement of the aircraft and prevent collisions with other aircraft, vehicles or personnel. Procedures for these personnel should be written down and should ensure the safety of the aircraft and the people involved. Personnel should be trained to ensure they are familiar with the procedures;
- g) All push-back crew members should wear high visibility garments in compliance with current standards;
- h) In the case of a departing aircraft being pushed back from its stand, the pilot of the aircraft will obtain approval to push back from ATC and pass this information to the tug driver.

'Dead' aircraft handling

6.8.3 In addition to the above considerations, the handling staff pushing back a 'dead' aircraft for towing will need to consider the following:

- A trained staff member will normally be required to occupy the flight deck to control the brakes, monitor radio contact between tug/aircraft and ATC and control the aircraft's anti-collision and, if appropriate, navigation lights
- As soon as a tug is assigned a task associated with the movement of an aircraft on any part of the manoeuvring area the tug driver must normally establish RT contact with ATC and obtain a specific ATC clearance before entering the manoeuvring area. The tug driver will normally be instructed to advise ATC when the manoeuvre is complete
- Whilst an aircraft is under tow, the tug driver is responsible for the safety of the aircraft, just as the aircraft commander is when it is taxiing. It should be remembered that, irrespective of any instructions issued by ATC, the tug driver is responsible at all times for ensuring that the aircraft does not collide with vehicles, aircraft, buildings or other obstructions.
- When towing an aircraft, it is particularly important to be aware of the extent of the extremities, such as wingtips, of the aircraft and their proximity to obstructions. In the event that a tug driver is unsure whether there is sufficient space for an aircraft under tow to be moved safely, he or she should safely bring the aircraft to a stop and request assistance. If the aircraft stops on the manoeuvring area for this reason, the driver should advise ATC.
- For safety reasons it is important that the number of persons on board (POB) the aircraft is known for local ground movements. Companies involved with ground movements should ensure that tug drivers ascertain the POB. In the event of an incident or other unusual circumstances involving the towed aircraft, the tug driver should be able to advise Airfield Operations or the Fire Section staff of the POB
- When an aircraft is being towed during the hours of darkness or low visibility, it must display those lights which would be required when flying, i.e. navigation lights. Logo lights will usually be of assistance to ATC
- During Low Visibility Procedures (LVPs) it is essential that all vehicles operating on the airfield operate in accordance with the safety requirements set out in LVPs and exercise extreme caution particularly when operating on the manoeuvring area.

Power-back procedures (Reversing under Power)

- 6.8.4 Powering back an aircraft is inherently less directionally accurate than push-back or powering forward: there may also be an increase in noise and blast effect. Accordingly, the use of this technique should be limited to those aircraft types authorised in the aircraft's flight manual to reverse under power and for which procedures can be agreed which do not adversely affect apron safety in respect of engine noise, vibration and blast effects.
- 6.8.5 Before approving power-backs the aerodrome operator should take into consideration aircraft characteristics, apron layout/stand density, the stand clearances available and any gradients involved on stands or taxiways.
- 6.8.6 Before approval is issued to an airline, for a particular aircraft type, the aerodrome operator should satisfy itself that the intended operation will be safe and will not give rise to unacceptable levels of noise, vibration, blast or fumes on the adjacent apron areas. The following minimum requirements are recommended.
- a) The procedures are authorised in the aircraft manufacturer's manual;
 - b) The procedures to be used are incorporated in the airline's operations manual;
 - c) Pilots are trained and experienced in power-back operations;
 - d) The aircraft is directed by a trained handling agent/marshaller using standard power-back marshalling signals;
 - e) Wing walkers are employed to safeguard the rearward movement of the aircraft, particularly wing tip clearances, to prevent collisions with other aircraft or vehicles or personnel. Procedures, training and personal protective equipment should be employed which ensure the safety of these personnel during powerback operations;
 - f) A trial is observed of a live powerback using the engine settings, aircraft weight and procedure intended for operational use in which the safety of the operation is demonstrated.
- 6.8.7 The aerodrome operator should assess the effects of noise, vibration, blast and fumes, observed during the trial, in order to decide the suitability of the procedure demonstrated. It is not possible to state the finite limits of noise, blast and fumes to suit all locations and all aircraft types; aerodrome operators should decide the local limitations to be met.
- 6.8.8 Power-back operations should not be permitted when passengers are being boarded or disembarked on adjacent stands unless it is necessary for operational reasons. In such circumstances, the aerodrome operator should specifically consider and assess the associated risks and put in place control measures to reduce these risks to as low a level as reasonably practicable.

Multiple push-back procedures

- 6.8.9 Multiple aircraft push-backs from a run of stands, or in a cul-de-sac, are an accepted method of achieving a faster push-back and departure rate, but they must be conducted with due regard to the additional health and safety requirements that arise for ground crews and for overall aircraft safety.
- 6.8.10 Approval for start of 'push-back' normally rests with ATC and if there are apron areas of an aerodrome where the ground movement controller does not have a full view of the aircraft, then any procedures must take this into account.

- 6.8.11 The principal safety threats in push-back operations where aircraft end up positioned nose to tail are:
- a) Aircraft positioned too close to each other when the push-back phase is completed.
 - b) Excessive levels of engine blast and fumes for push-back crews positioned behind another aircraft that has started or is starting its engines.
- 6.8.12 In order to avoid excessive blast and fumes, the safe separation distance behind an aircraft will vary according to aircraft type and engine fit. It is impractical for push-back crews or operational staff to measure exact distance each time, therefore, a practical rule of thumb should be established to permit multiple push-back operations to be managed and sequenced safely. Experience gained from other aerodromes may be useful in deciding what practical separation distances can be used with safety, but in any event safe separation distances should be established through a risk assessment. Aircraft maintenance manuals will also include guidance on this topic.
- 6.8.13 The acceptance of a clearance from ATC to push-back into an area in which other aircraft are being manoeuvred will normally assume that the prescribed safety distance criteria will be achieved. The decision to accept a clearance for a 'multiple push-back' remains with an aircraft commander as does the responsibility to ensure that the push-back crew are fully aware of any limitation or conditions to be adhered to. Clearly there is a need for prior planning, co-ordination and information exchange between the aerodrome operator, the operators and ATC before such manoeuvres are adopted as standard practice as any aerodrome.
- 6.8.14 Model operating procedures that may be suitable for issue by an Aerodrome Authority dealing with Aircraft Push-Back Procedures are included at Appendix C to this Chapter.
- 6.8.15 Model operating procedures that may be suitable for issue by an Aerodrome Authority dealing with the operation of Towbarless Tug Vehicles are included at Appendix D to this Chapter.
- 6.8.16 Model operating procedures that may be suitable for issue by an Aerodrome Authority dealing with Aircraft Power-Back Procedures are included at Appendix E to this Chapter.

6.9 Other safety considerations

Signs, Markings and Guidance

- 6.9.1 A proliferation of signs and surface paint markings on aprons and airside roads can lead to confusion and, possibly, disregard of the important information and guidance being given. The multitude of signs often found in airside areas can lead to the condition of 'sign blindness' where important sign messages are missed, particularly if they do not conform to recognised standards.
- 6.9.2 Aerodrome operators should arrange for a sign agency, such as the Airfield Safety or Operations Officer to establish standards and to co-ordinate and control airside signs and ground markings. Regular audits should be undertaken to remove redundant markings and signs and to ensure compliance with the promulgated standards.
- 6.9.3 Signs should be clear in format, clear in the message they convey, in clean condition and positioned to give the clearest indication of the intended information. Experience shows that airside users become familiar with a recognised standard of signs and markings and tend to react correctly to their information.
- 6.9.4 A standard for airside signs should be established and promulgated for aerodrome-wide information. The design of sign will, of course, depend on the need for that sign.

It should comply with the following standards and it is likely it would be selected in the following order of precedence:

- a) Where applicable signs should conform to the standards described in CAP 168 Licensing of Aerodromes;
 - b) Where CAP 168 does not offer a suitable sign, the standard signs published in association with the Road Traffic Acts should be consulted to identify an appropriate design;
 - c) Where appropriate, signs should conform to the requirements of the Health and Safety (Safety Signs and Signals) Regulations 1996. (The bulk of the signboards in the regulations are the same as those in BS 5378:1980 Safety signs and colours);
 - d) The use of purpose designed special signs should only be considered when the standard possibilities have proved unsuitable.
- 6.9.5 Signs should be clearly readable at night, particularly warning signs such as vehicle height restrictions and those marking the approaches to the Aircraft Manoeuvring Area. In remote locations where area lighting is not provided, point lighting or retroreflective signs should be used although care must be taken to avoid any creating any lighting effects that may cause confusion to pilots or drivers.
- 6.9.6 Ground markings on the movement area should conform to standards contained in CAP 168 and, in general, should adhere to the following principles:
- a) Yellow markings for the guidance of aircraft;
 - b) White markings for the guidance of vehicles, equipment and staff;
 - c) Where possible, airside road markings should conform with, or be based upon, the standard markings published in association with the Road Traffic Acts;
 - d) Fixed obstructions that represent an obstruction to aircraft or vehicles, such as corners of buildings, air bridges and airside furniture, including lighting pylons, should be painted in a colour(s) that make them prominent by day, by night and in reduced visibility.
- 6.9.7 Where CAP 168 does not give suitable guidance, signs and markings should adhere to an alternative standard, such as those described in the IATA Apron Markings and Signs Handbook, wherever possible.
- High-visibility clothing**
- 6.9.8 Irrespective of other measures that are taken to provide a safe environment for personnel working in airside areas, all personnel who will be working outside (i.e. on foot) on the movement area should wear high-visibility clothing.

7 Engine Hazards

- 7.1 There is a clear operational need for the running of aircraft engines on apron areas. The associated safety hazards caused by exhaust blast, vibration, fumes, turning propellers and rotors and the intake suction of jet engines are well recognised. As part of the safety management system, aerodrome operators should ensure that rules and procedures for safe engine running on the aerodrome are promulgated and understood by flight crews and handling staff.

Blast, Vibration, Noise and Fumes

- 7.2 Even at idle power the blast effects, vibration and fumes from all sizes of aircraft engines can be significant. As engine size and power settings are increased, the potential for personal injury and damage increases. The amount of fumes produced is directly related to the engine running time and the power settings used. Engine running

on the apron and adjacent taxiway areas should be limited to the minimum necessary to meet aircraft operating needs. In formulating safety rules the issues detailed in the following paragraphs should be considered.

General

- 7.3 Vehicles and personnel should not pass behind running engines. Staff must not approach running engines unless it is part of their job function and is necessary for the task at hand, in which case a risk assessment of the operation leading to control measures which will protect aircraft safety and staff health and safety is required.
- 7.4 Drivers and pedestrians should be vigilant at all times on the apron. A common indication to handling staff that aircraft engines are running, or are about to be started, is the illumination of the aircraft's anti-collision beacon(s). However, the absence of such illumination should not be regarded as proof that the engine is safe to approach and the presence of blast and engine noise may not be immediately obvious to a driver in a vehicle or a person wearing ear defenders.
- 7.5 Where possible, blast screens should be provided to protect buildings, installations and vehicle and staff areas that are vulnerable to blast.
- 7.6 When contractors' sites using temporary buildings are placed on the apron, due regard should be given to building design and protection to minimise the effects of blast, vibration, noise and fumes for the occupants.

Engine Management on Aircraft Arrival

- 7.7 When turning on to a stand, it is desirable that flight crews use the minimum power needed to carry out a normal arrival manoeuvre. Where possible the aircraft should be kept moving to avoid the need to apply 'break away' power to continue the approach to the stand. This is particularly important in cul-de-sac locations.
- 7.8 Flight crews should be reminded of the need to avoid the use of high power settings on live engines when others are shut down.
- 7.9 Thrust levers should not be exercised for any purposes when the arriving aircraft is on stand, unless specifically approved by the aerodrome operator.
- 7.10 The aircraft anti-collision beacon(s) must remain on until engines have run down or propellers/rotors have stopped rotating.

Engine Management on Aircraft Departure

- 7.11 A trained member of airline or handling staff should ensure that the area behind the aircraft and the zone immediately in front of the engine intakes are clear of personnel, vehicles and equipment before engine start.
- 7.12 The aircraft anti-collision beacon(s) must be switched on before an engine is started.
- 7.13 The number of engines started before push-back commences should be the minimum to meet technical and passenger-service needs.
- 7.14 During start up and push-back, engine power settings should not normally exceed ground idle.
- 7.15 Wide body aircraft should not normally be permitted to start more than one engine until the aircraft is aligned with the centreline of the taxiway/taxilane and ground personnel are clear of the aircraft.
- 7.16 Aircraft leaving the inner stands of a cul-de-sac should be towed forward to a safe distance from the blast screen before the tug and towbar are disconnected. This position should be marked on the taxiway centreline for guidance of tug-crew.

- 7.17 Three-engined aircraft should not start the top engine until the aircraft has been aligned with the taxiway and is at a safe distance from buildings/blast screens. This position should be marked on the taxiway centreline for the guidance of the tug crew.

Engine Test Running

- 7.18 Engine runs and check starts should be controlled and only carried out with the prior approval of the aerodrome operator who should specify the conditions to be applied, for example:
- a) Where possible, engine runs should be carried out on agreed, selected and prepared remote areas, preferably equipped with engine baffles/detuners;
 - b) Engine runs at above idle power should not be permitted in cul-de-sacs or, for example, in areas where the jet efflux would impinge on stands, equipment areas or works areas;
 - c) Engine runs approved on stands in regular use in apron areas should be limited to check starts and idle power only;
 - d) Where engine running is permitted on the apron, a remote area should be chosen where the jet-blast will not effect other apron areas and busy taxiways;
 - e) Where necessary, engine runs should be safeguarded by Airfield Operations staff who should arrange for any rear of stand roads to be closed and, if needed, sections of taxiway;
 - f) The area behind and adjacent to the cone of the blast should be clear of equipment and the ground must be firm and without loose tarmac, stones or other material.

Fumes and Noise

- 7.19 In approving engine running or self manoeuvring on the apron the following should be taken into account:
- a) The concentration of fumes present in an aerodrome area is in direct relation to the time engines are run, the type of engine and power settings used and the strength and direction of the surface wind;
 - b) To prevent an unacceptable noise nuisance and build-up of fumes, the running of engines in the direct vicinity of buildings, workplaces and congregations of staff or passengers should not be approved;
 - c) Where workplaces, such as cargo-sheds and engineering facilities, have to open directly on to stand areas, a specific risk assessment is required to determine how best to operate all facilities safely and without risks to health, in respect of noise and fumes.
- 7.20 Aerodrome operators should develop policies and procedures to minimise the effects of engine noise, vibration and fumes on their local population.

Suction - Ingestion

- 7.21 The intake suction of jet engines is a hazard, even at idle power, and the flow characteristics of air into an engine are such that items can be picked up from in front of, from below, and from the sides of the intake. Even small items ingested can damage the engine, but the larger engines are quite capable of ingesting large objects from several metres away with catastrophic effect.
- 7.22 The extent of the danger zone depends on the size of the engine, the mounting height and the power setting. Managers of aircraft handling staff should calculate and promulgate to their staff the safe distances for operating around the types of aircraft they operate. See figure 1.

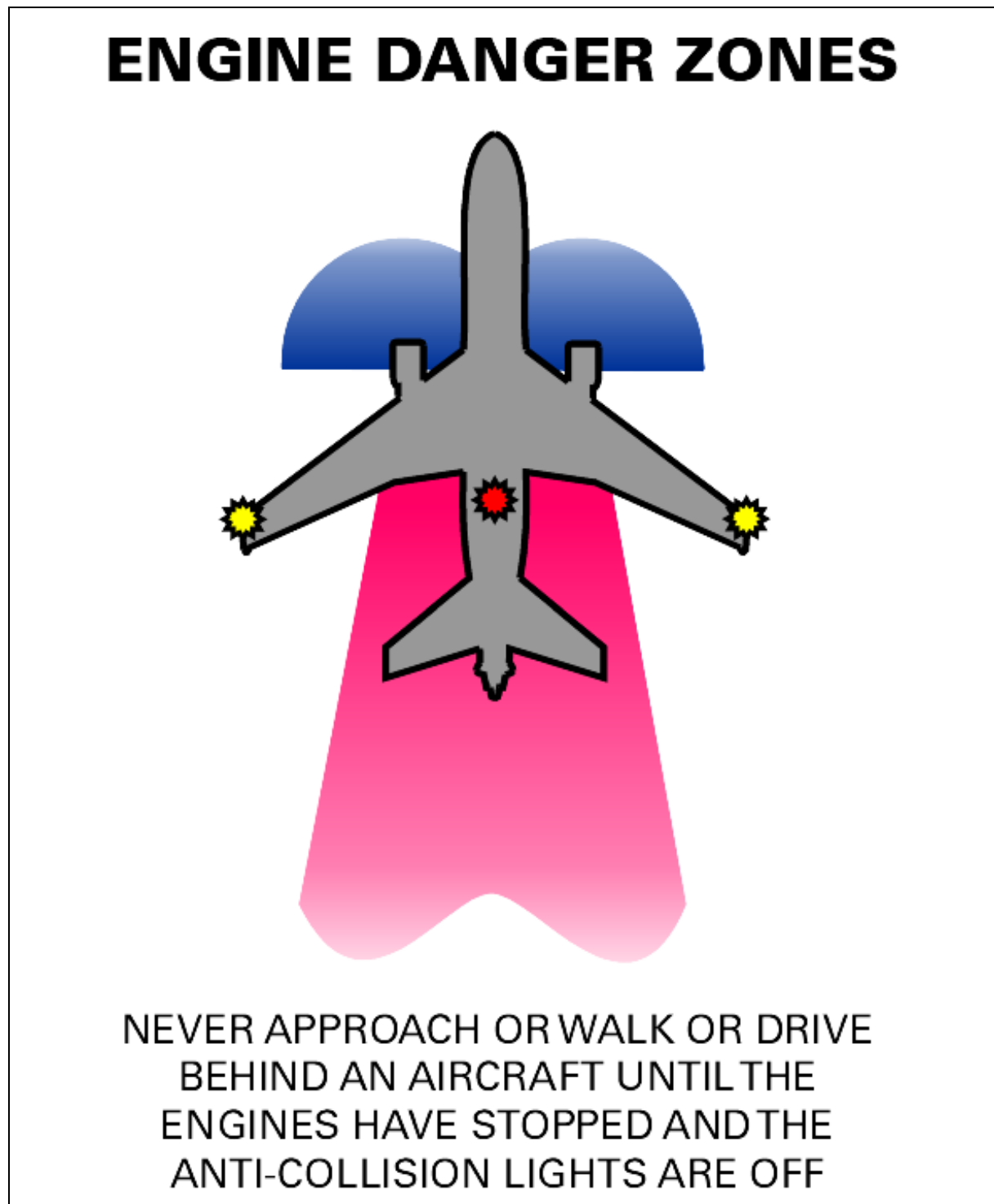


Figure 1 Engine Danger Zones

- 7.23 Personnel entering the danger zone in front of a running jet engine expose themselves to the risk of being sucked in, almost invariably resulting in serious or fatal injury.

Foreign Object Damage

- 7.24 'Foreign object damage' or 'foreign object debris', both abbreviated to FOD, are a potential source of catastrophic damage to aircraft - particularly engines. FOD can also be a tripping or slipping hazard resulting in injury to personnel and passengers.

- 7.25 As part of the safety management system, aerodrome operators should include instructions, services, facilities and initiatives to combat the risks arising from FOD. The aerodrome operator should establish a programme to educate all apron users on the hazards and requirements associated with FOD and to stress the responsibilities of all personnel employed on the apron to minimise risks from FOD.
- 7.26 Aerodrome operators must ensure that there are programmes of regular apron sweeping, cleaning and inspection, including rapid reaction to fuel and other liquid and chemical spillages. They should also provide facilities for the disposal of solid and liquid aircraft waste and FOD protection. They should pay particular attention to such prime FOD generators as contractors' areas and baggage facilities.
- 7.27 All vehicles and equipment used on the aprons should be maintained in a clean and serviceable condition, not only for reasons of safe vehicle operation but also to minimise the leakage of fluids and depositing of FOD from these vehicles. (See Chapter 4 for additional guidance on the safe management of airside vehicle operations).
- 7.28 Rules and arrangements should be in place for the removal of hazards from the apron such as abandoned vehicles and equipment (See also Chapter 3, Section 8 Ground Handling Policy for additional guidance on this topic).

Propellers

- 7.29 Aerodrome operators should issue instructions to safeguard apron operations around propeller driven aircraft. Apron staff must be alert to the dangers of running propellers and should be stimulated by suitable awareness campaigns. At some aerodromes there are relatively few propeller driven aircraft currently and ramp staff are likely to be less familiar with the precautions to be observed, particularly for staff of airlines which themselves offer no propeller driven services. Aerodrome operators should also ensure that the safeguarding of 'propeller areas' is included in airline operating procedures.
- 7.30 Aerodrome operators should provide suitable apron layouts and facilities that provide proper clearances for the operation of propeller aircraft types, with particular emphasis on ground clearance for propeller tips and the proximity of airbridges and other ramp equipment when the aircraft is at, or approaching, its parking position. Stands at which this cannot be achieved should not be used for propeller aircraft.
- 7.31 Passengers should not be allowed to walk on the apron when propellers are turning. Where it is operationally essential to have the propellers turning, passengers must be effectively controlled (see paragraphs 4.1 to 4.5 for further guidance).

Rotors

- 7.32 Helicopter operations, particularly those of large helicopters, should be segregated from fixed-wing apron operations where possible. In addition to the provision of standard clearances for rotors in the apron layout, due regard should be given to the other characteristics of rotary operations, including:
- a) The heavy down draught produced by helicopter movements;
 - b) The vulnerability of helicopters and aircraft to jet blast, strong winds and rotor downwash from other helicopters;
 - c) The risk of reduced ground clearance caused by the drooping of the rotor (blade sailing) as it runs down following engine shut down or drive disconnection;
 - d) The ease of approach to the chosen helicopter stands in hover and hover-taxi mode and the least interference from/for taxiing fixed wing aircraft;

- e) The risks associated with tail rotors.
- 7.33 Dependent on aircraft type characteristics, procedures should include arrangements whereby:
- a) Helicopter arrivals are marshalled, unless the helicopter apron is remote and configured for self-manoeuving. Marshalling assistance/safeguarding may also be required for departure;
 - b) Ideally passengers should not be allowed to walk on the apron when rotors are turning. Where it is operationally essential to keep rotors running passengers must be effectively controlled (see paragraphs 4.1 to 4.5 for further guidance);
 - c) Staff, vehicles and ground equipment should remain well clear of the rotor disk until it has come to rest. If as above, running the rotors is essential, handling staff must be trained accordingly;
 - d) Suitable signs should be provided to warn drivers and apron staff that they are approaching an area where helicopter operations are handled. All airside drivers and handling staff should be briefed to maintain a good look-out and also should be trained to look upwards as well as horizontally to detect and give way to helicopter movements.
- 7.34 A model Safety Instruction that may be suitable for issue by an Aerodrome Authority dealing with Aircraft Blast and Fumes - Arrival, Engine Start and Push Back is included at Appendix F to this Chapter.
- 7.35 A model Safety Instruction that may be suitable for issue by an Aerodrome Authority dealing with Aircraft Engine Ground Runs and the Use of Auxiliary Power Units is included at Appendix G to this Chapter.
- 7.36 A model Safety Instruction that may be suitable for issue by an Aerodrome Authority dealing with Foreign Objects on the Apron and the Removal of Hazards is included at Appendix H to this Chapter.

8 Falls and falling objects

8.1 General

- 8.1.1 Access to external elevated levels on and around aircraft will be required when aircraft are on the stand. Such work includes catering, cargo and baggage handling at the aircraft hold doors, some cleaning activities and maintenance.
- 8.1.2 It is not sufficient merely to indicate the presence of an edge from which a person may fall. There must be suitable and effective measures to prevent any person falling a distance likely to cause personal injury. Measures must also be taken to prevent people or aircraft being struck by falling objects. However, preference should be given to providing a safe place of work rather than relying on personal protective equipment, information, instruction, training or supervision to prevent these events. Nevertheless, even where all other reasonably practicable measures have been taken to prevent falls, personal protective equipment (PPE), for example a safety harness and lanyard, may still be necessary if a significant risk of falls remains.
- 8.1.3 Provision of head protection is not considered normally necessary for activities around aircraft on the apron; ground support equipment can and should be designed and used in such a way as to render such PPE unnecessary. However, head protection may be necessary for other activities on the apron, such as construction work or maintenance of plant.

- 8.1.4 By its very nature all access equipment has to be used in close proximity to the aircraft. Drivers may need to seek assistance, e.g. from a person appointed to guide the vehicle, to ensure the correct positioning of the access equipment so that there are no gaps large enough for a person to fall through, as well as preventing the access platform or its chassis striking the aircraft. Drivers should also make allowance for the change in height of an aircraft during loading/unloading as this might cause the aircraft to touch the access equipment resulting in damage to the aircraft.
- 8.1.5 If any damage to the aircraft is suspected, this must be reported immediately to a responsible person, for example the aircraft commander or other technical representative of the aircraft operator.
- 8.1.6 Suitable access equipment should always be used to gain access to heights. Work from surfaces such as vehicle cabs, roofs of buildings and equipment is not acceptable unless these places have been designed or adapted to make them safe for such work. Mobile elevating work platforms (MEWPs) can often provide flexible and safe means of access to heights. They should be used in accordance with a safe system of work and procedures which minimise the risk of injury and damage to the aircraft.
- 8.1.7 Some places may be temporarily adapted to make work at heights safe. For example, some aircraft have attachment points on their wings for running lines and harnesses. The health and safety of the engineers preparing such places of work for use should be considered, as well as the prevention of damage to the aircraft.
- 8.1.8 Work at heights above two metres should only be undertaken from equipment fitted with guardrails to all sides, so far as reasonably practicable. Edge protection may not be necessary to sides which are fitted with access steps or sides where the proximity of the body of the aircraft prevents falls.
- 8.1.9 Toeboards and/or other protective devices (e.g. a personal belt to which tools can be attached) may be necessary if there is a risk of objects falling and damaging the aircraft or injuring people working below. It should be remembered that even if falling objects do not directly cause injury or aircraft damage, they can become a source of Foreign Object Debris, or may cause people to trip and be injured.
- 8.1.10 Where guardrails etc. cannot be fitted, other means, such as the use of PPE, should be considered. It should be noted that where the potential height of a fall is less than four metres, the use of lanyard and harness systems as fall arrest devices may not prevent injury as the worker may hit the ground before the device becomes effective. Advice should be obtained from the equipment supplier.
- 8.1.11 Where falls of less than two metres may occur, each situation should be assessed for the likelihood of injury and aircraft damage, and appropriate preventive measures taken. For example, the likelihood of injury is increased if there are obstructions, such as low profile equipment with sharp edges, onto which people may fall, or the work is taking place alongside a traffic route.
- 8.1.12 As with all equipment, means of access and means for preventing falls (including those integral to the aircraft) should be maintained in an effective state, in efficient working order and in good repair if continued protection against injury and aircraft damage is to be ensured. A regime of inspection may also be required to ensure that any deterioration in the equipment which may affect health and safety or aircraft safety is detected and rectified in good time. This inspection should be carried out by people with sufficient knowledge, experience and training to identify and prioritise defects. The results of inspections should be recorded and kept until at least the next inspection and longer if the inspection results are used for monitoring serviceability trends.

8.1.13 Paragraphs 12.1 to 12.4.4 and 18.1 to 18.8 contain further general advice on equipment.

8.1.14 In all cases where access or work at heights is required, employers should always ask themselves 'Have I taken suitable and effective measures to prevent any person falling a distance likely to cause personal injury?' And 'Have I done enough to ensure that the aircraft will not be damaged by the work?'.

8.2 **Access to Aircraft Doorways**

8.2.1 Safe access to aircraft entry/service doorways is particularly important as the height of fall from the doorway of an aircraft may, in extreme cases, result in a fatal injury. Aircraft doors and doorways are also particularly vulnerable to damage. Such damage may go undetected for some time. For example, damage to escape slides may not be immediately apparent and may not be discovered until the next periodic inspection of the slide assembly or until it is used in an emergency.

8.2.2 Proper planning, safe systems of work and instruction and training are required to ensure that aircraft doors are opened in such a way that no one is exposed to the risk of a fall and the risk of damage to the aircraft is minimised.

8.2.3 Airlines should ensure that they do not require aircraft doors to be opened in a manner which exposes people to unnecessary risk. The types of vehicles commonly used to service aircraft rarely have means to prevent falls from the edge that is adjacent to the aircraft when in use. In some circumstances the access equipment can be brought close to the aircraft before a person has to approach the leading edge. Examples are when the aircraft doors open inwards (see figure 2), upwards, are powered open and closed, or otherwise avoid the need for people to approach the edge of the access equipment or the aircraft doorway.

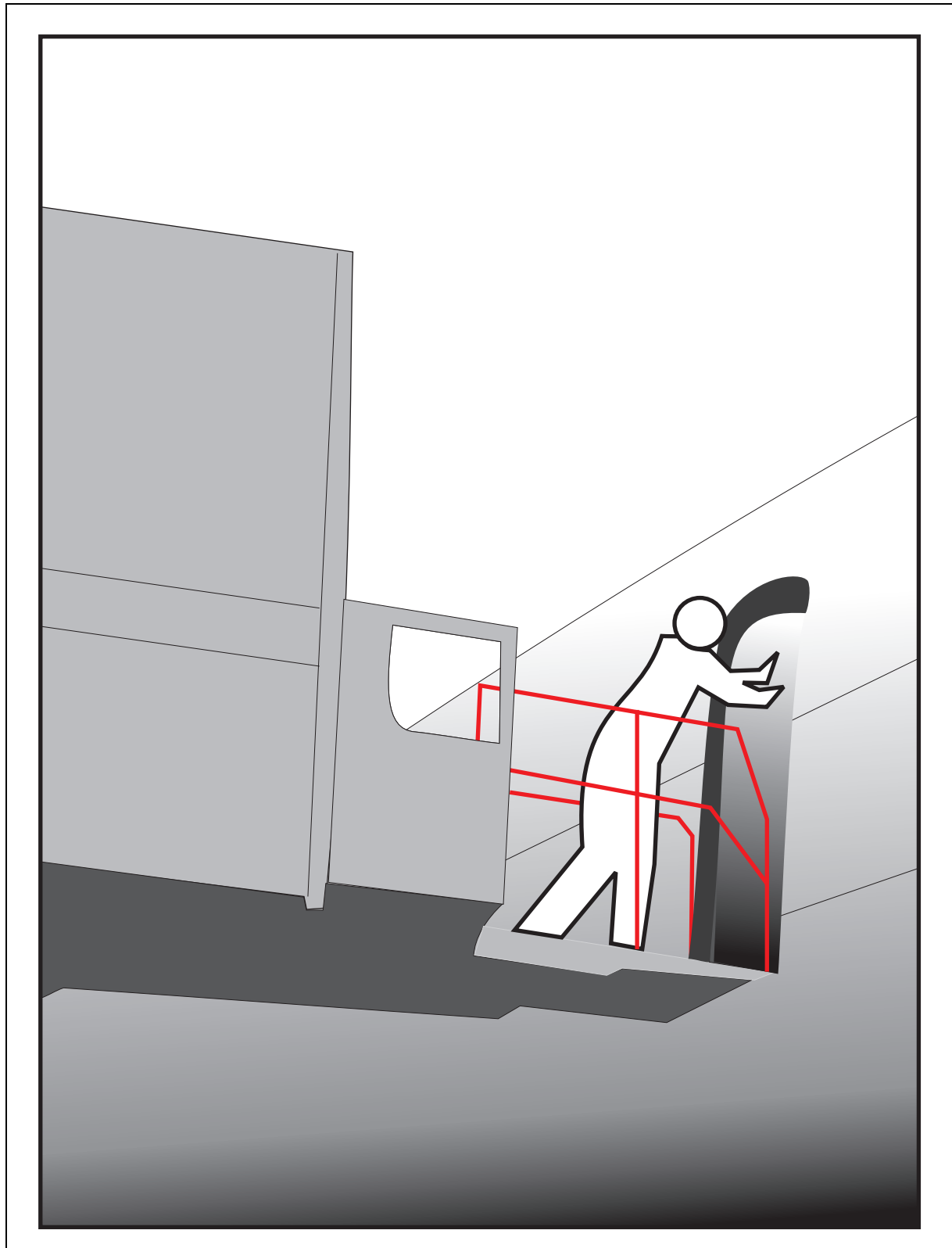


Figure 2 Inward Opening Aircraft Door

- 8.2.4 Where the aircraft has outwards opening doors, which may foul the access equipment during opening and closing, employers should establish whether the safest option, for both the worker and the aircraft, is to open the door from inside. This may require co-operation and co-ordination with the airline operating the aircraft.

- 8.2.5 If opening the door from the inside is not the safest option, employers should ensure that people work at the unprotected edge of the access equipment for the shortest time that is practicable. The floor on which the employee is standing should not have any defects that are likely to cause them to slip, trip or fall. Secure handholds should also be provided.
- 8.2.6 Where an extra wide platform can be positioned against the aircraft, the increased width can provide additional protection against falling (see figure 3) and reduce the risk of damage to the aircraft door. There should be a safe system of work in place for opening the door, and employees should be given information, instruction and training on the task.

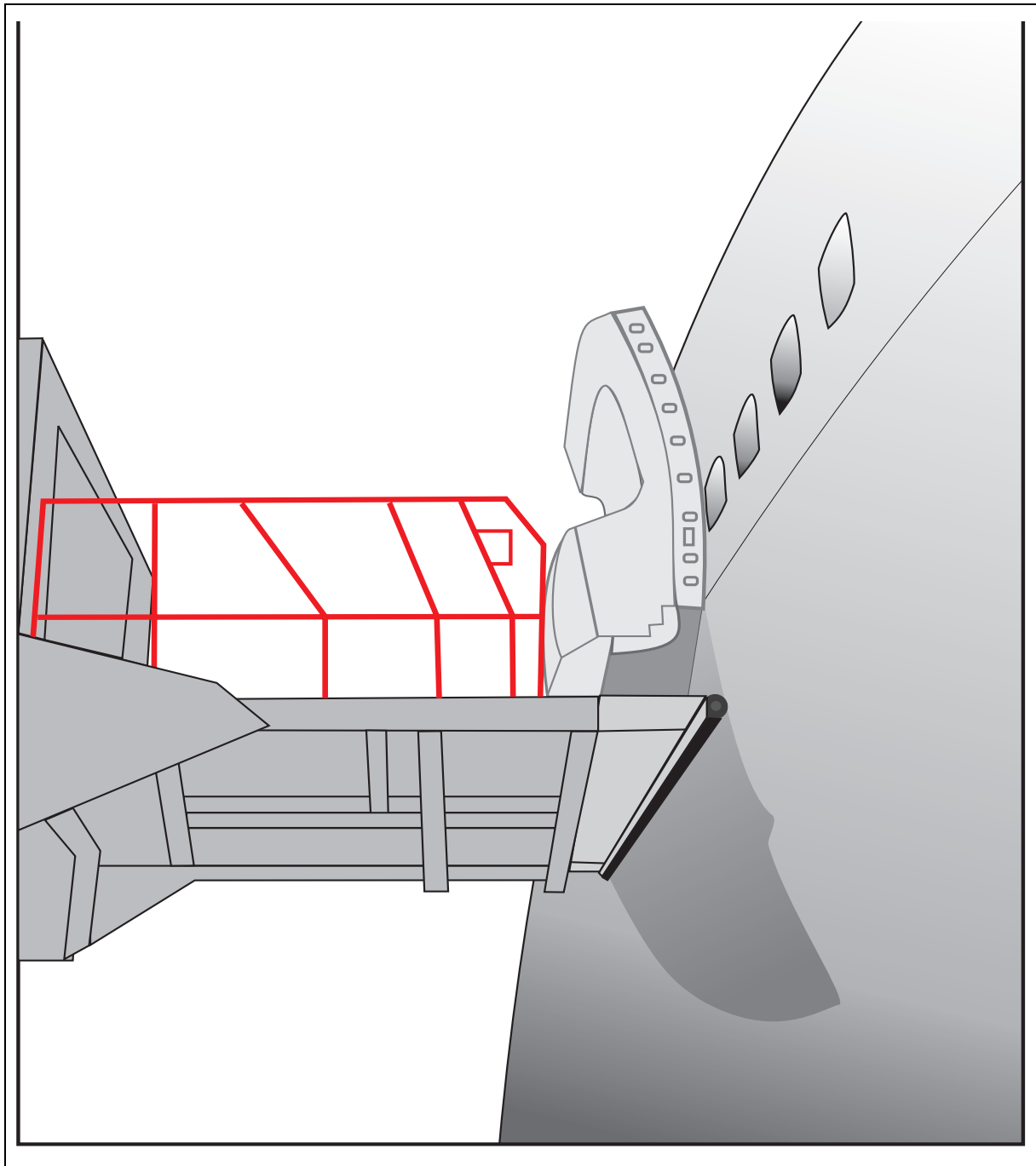


Figure 3 Wide Access Platform

Whatever platform is used, the moveable side guardrails should be adjusted to be close enough to the aircraft to protect the workers without causing damage to the aircraft; it must be kept in mind that a gap of more than 300 mm will not ensure the safety of the workers and that the aircraft may move during loading and unloading. Guardrails should be moved into position as soon as is practicable and certainly before the doorway is used. The last task before the access equipment is withdrawn from the aircraft should be to retract the guardrails. It is equally important that any controls that move the platform should be located so that the operator has a clear view of the platform in order to prevent the platform striking the aircraft.

- 8.2.7 Sometimes, aircraft doors are left open for reasons other than access, for example to keep the aircraft cooler in hot weather whilst cleaners etc. work inside. When doors are left open, suitable means to prevent a fall should be in place. These include placing aircraft steps at the doorway; although particular aircraft operator's or aerodrome operator's security requirements need to be kept in mind.
- 8.2.8 The straps and their attachments which are often fitted to aircraft doorways are not sufficient as a means to prevent a fall, as they are not designed to withstand the forces generated by a person falling or leaning against them.
- 8.2.9 If other means of preventing a fall cannot be provided, then the aircraft doors should be kept shut. If necessary, the aircraft's air conditioning should be used to keep working temperatures comfortable. Where possible, this should be provided by an safely positioned mobile air conditioning unit, rather than the aircraft's auxiliary power unit (APU), as the APU generates considerable noise for those working outside the aircraft. Any aerodrome policies on the use of GPU/APUs should be kept in mind.

8.3 **Other parts of the aircraft**

- 8.3.1 Access to parts of the aircraft other than the doorway may be gained by a suitable MEWP, although other measures may be used if they are suitable and effective. The edge protection around the working platforms should be maintained so as to prevent persons falling.
- 8.3.2 Over-wing access presents a risk of falling. Lightweight fall restraint devices incorporating a lanyard and harness have been found to be effective for such access. Any equipment which interfaces with the aircraft surfaces should be approved by the aircraft manufacturer. Some aircraft manufacturers already provide attachment points for harnesses on wings of their aircraft and, in such cases, the manufacturer's guidance on their use must be followed.

8.4 **Other Falls Associated with Aircraft**

- 8.4.1 A significant number of accidents occur as the result of falls through uncovered access points in the internal floors of aircraft when covers have been temporarily lifted. Accordingly, covers should be replaced when the access way is not in use and uncovered access points should be provided with a temporary barrier.

9 **Airbridge Operations**

- 9.1 There have been several incidents involving airbridges which have occurred in the UK and on the Continent which had potential for major aircraft damage and/or serious injury to personnel. These have included:
- collapse and other extensive structural failure
 - uncommanded or unexpected movements

- obstructions, such as vehicles and equipment, being struck by the airbridge, due in part to the failure of detection devices
- rotten floors and leaking roofs creating slip and trip hazards.

9.2 These incidents have commonly been caused either by incorrect installation or inadequate maintenance of the equipment, or poor procedures leading to operator error.

Installation

9.3 The efficient and safe in-service operation of these walkways depends on their correct installation. Therefore, they should be inspected after installation and before being put into service for the first time.

9.4 Detailed advice cannot be given on the content of such an inspection, but it is unlikely to be adequate unless it is based on the findings of a risk assessment. Such an assessment will need to cover the appropriate issues outlined in paragraph 9.12.

9.5 The process of installation may be subject to the requirements of the Construction (Design and Management) Regulations 1994. Advice on these regulations is contained in published HSE guidance, including the Approved Code of Practice to the Regulations.

Airbridge Equipment

9.6 The following auxiliary equipment should be fitted to apron drive airbridges:

- a) Audible and visual warnings that operate automatically when the bridge is in motion;
- b) In order to overcome downward and rearward blind spots for the operator, CCTV or sight mirrors to cover blind areas in which the airbridge is able to manoeuvre;
- c) Pressure sensitive safety hoops which, when they touch an object, cut out the motive force thus stopping movement of the bridge;
- d) Means to prevent falls from the leading edge of the airbridge, such as doors or guardrails, for use when the airbridge is not in place against an aircraft. (The comments in paragraphs 8.1 and 8.2.8 are also relevant in relation to airbridges).

Ground Markings

9.7 Apron-drive airbridges are vulnerable to obstructions. Significant damage has occurred when items of equipment have been parked in the operating area of airbridges. For stands equipped with an apron-drive airbridge, ground marking in the form of a hatched area should be provided to delineate the area within which the parking of vehicles and equipment must be prohibited. The aerodrome operator should enforce this parking restriction and airbridge operators should bring improperly parked vehicles to the aerodrome operators attention.

9.8 For stands equipped with an apron-drive airbridge, a ground marking in the form of a parking box should be provided to show the position of the airbridge wheels when it is fully retracted so that the prescribed safe clearance can be maintained between any aircraft and the bridge structure.

9.9 To assist marshallers and tow-on crews, painted stop marks should be provided across the stand centreline and designed for each aircraft type permitted to use the stand. These stop marks should be harmonised with the Visual Docking Guidance System (VDGS) stopping positions for the particular aircraft.

- 9.10 The extendable portion of rail-drive airbridges should be highlighted by conspicuous marking (such as retroreflective chevrons) to indicate to pilots, drivers and apron staff that the bridge is extended.

Airbridge maintenance and unservicabilities

- 9.11 Aerodrome operators should establish a schedule of preventative maintenance, including inspection by competent people.
- 9.12 Such inspection and maintenance regimes are unlikely to be adequate unless they consider the following points:
- the structural integrity of the airbridge, including components vulnerable to catastrophic failure and the potential for water ingress to cause corrosion to the walkway or its control and drive systems
 - the electrical safety of the airbridge and the potential for electrical failure to cause uncommanded or unexpected movement
 - the mechanical integrity of the drive and control systems of the airbridge, including the condition of the hydraulic fluid and the components on which it impinges
 - the conditions of wheels and tyres
 - the devices for detecting obstructions (if any), such as closed circuit television (CCTV) or sensor rings.

- 9.13 Aerodrome operators should establish and promulgate a formal reporting system for airbridge faults. The procedure should include immediate response activities by engineering and airfield operations staff, where necessary withdrawing the airbridge from service until remedial action is taken, to maintain safe aircraft and passenger handling.

Operating Procedures

- 9.14 Aerodrome operators should ensure that they develop and promulgate Standard Operating Procedures (SOPs) for airbridges. These should include emergency back-off and wind-off procedures. Instructions for emergency back-off action should be displayed in the airbridge cab and in the case of manual wind-off, at the point of operation.
- 9.15 Procedures that are specific to the stand or airbridge should normally be placarded at the airbridge control position. This is particularly important if the procedures relate to different configurations for particular aircraft types.
- 9.16 In the event of an emergency whilst the aircraft is on stand, the airbridge should remain attached or be re-attached to the aircraft until all passengers and crew have evacuated the aircraft.
- 9.17 Further advice on airbridge operation is given in paragraph 6.32.

Operator Training and Licensing

- 9.18 A system should be established for the training, testing and licensing of airbridge operators in accordance with Chapter 5. An Airbridge Operator's Licence (or permit), endorsed for the appropriate type of airbridge, should be issued by the aerodrome operator when a satisfactory level of competence has been demonstrated. The demonstration of competence should include a practical test. Procedures should be established to ensure that airbridge operators attempt to operate only those types of airbridge on which they have been assessed as competent. Airbridges with different operating characteristics or control/warning systems should be considered to be different types of airbridge.

- 9.19 Licences should only be issued to those staff who regularly operate airbridges as part of their job function, as it is these staff who remain fully familiar, in good operational practice and up to date with operational changes and airbridge modification states. Licence holders should be subject to regular revalidation to confirm that they remain competent to operate the equipment. The aerodrome operator should also establish an audit system to ensure airbridge operator competency and adherence to standards, records of airbridge incidents and major faults should also be examined. If responsibility for training and/or testing of airbridge operators has been delegated to a handling agent or a third party, the airport operator should conduct regular audits of the performance and actions of these organisations in order to ensure that adequate levels of safety are achieved. Following an accident or incident, airbridge operators should be subject to revalidation on request of the aerodrome operator and it should be possible to suspend an operator's licence pending re-training.
- 9.20 If a new type of airbridge is introduced, all Airbridge Operator's Licence Holders who will be required to operate (or trainers who will be required to give instruction on) the equipment, should undertake training and testing to demonstrate their competency and familiarity with the new equipment before being permitted to use it operationally.
- 9.21 A model Safety Instruction that may be suitable for issue by an Aerodrome Authority dealing with Passenger Airbridges is included at Appendix I to this Chapter.

10 Manual Handling

- 10.1 Manual handling is a term that applies to activities such as lifting, lowering, pushing, pulling or supporting a load by hand or bodily force. It accounts for almost 50% of accidents reported to HSE by the air transport industry. Commonplace manual handling activities in the industry include, for example, ground crew operations such as the loading or unloading of an aircraft and lifting tow bars onto and from aircraft or towing vehicles. The provision of assistance for incapacitated or disabled passengers will require particular thought.
- 10.2 The Manual Handling Operations Regulations 1992, as amended in 2002, set out the legal requirements.
- 10.3 The best means of avoiding risk is to eliminate the hazard altogether, for example, by mechanised handling techniques. These include the use of ambulifts to assist the movement of incapacitated or disabled passengers onto the aircraft and handling aids for baggage. Where it is not reasonably practicable to eliminate the hazard, and ground staff are required to undertake manual handling, the legislation requires that:
- A suitable and sufficient risk assessment is made of each task which is considered to present a risk of injury. This should address the task, the load, the working environment and the capabilities of the individuals concerned
 - Action is taken on the results of the assessment, appropriate steps are taken to reduce the risk of injuries from manual handling
 - Information is provided on the weight and centre of gravity of the loads that are to be lifted where it is reasonably practicable to do so.
- 10.4 Baggage handling gives rise to more manual handling problems than any other activity at aerodromes. The following may help reduce injury from baggage handling. All these suggestions will require co-operation and co-ordination between the aerodrome operator, airlines and ground handling companies:
- Proper planning of new and refurbished facilities can provide significant reductions in the risk of injury, as well as increasing efficiency

- Examine the entire handling operation (where possible, from the first moment a bag is handled by a worker to the last) and consider whether a change of process or equipment could eliminate any stages of manual handling
 - Handling systems should be integrated with each other where possible. Different pieces of equipment should be compatible with each other and positioned to prevent unnecessary handling between, for example, security scanners, conveyors, dollies and aircraft loading equipment
 - Use conveyors (or similar) that are of a suitable height to minimise the risk of injury from lifting or lowering items to or from such equipment. 650 mm above the floor is commonly found to be an acceptable height, but this might vary depending on local circumstances and should not be applied rigidly
 - Consider the environment in which manual handling is undertaken. Floors should be dry and adequately maintained. There should be sufficient space to allow people to turn whilst handling, if such turning is unavoidable. There should be no gaps between equipment that result in people having to throw baggage. Lighting should be sufficient to allow tasks to be carried out safely. Ambient temperature should be kept at a reasonable level (e.g. in baggage halls), or warm clothing provided where this is not possible (e.g. on the apron)
 - Ensure that automated systems are properly maintained to minimise consequential poor manual handling techniques
 - Ensure that training is relevant to the tasks that people are undertaking. It may be necessary to target training to specific activities such as moving bags in the confines of the aircraft baggage hold
 - Provide general indication of the weight of each bag. This could be achieved by the attachment of a 'heavy bag' label at check in with instruction and training given to employees on how to deal with such baggage.
- 10.5 The primary objective must be to reduce the requirements for manual handling. It is good practice to review each stage of the baggage handling process with the aim of eliminating any unnecessary stages. For example, it might be possible to eliminate some stages by using a baggage transfer vehicle that can adjust to the correct height of the aircraft hold door. This eliminates manual handling from the transfer vehicle to a belt loader.

11 Noise

- 11.1 There are many sources of noise on an aerodrome. Excessive noise exposure can result in both short-term and permanent hearing loss. It can also compromise effective communication during safety-critical tasks. The relevant regulations are the Noise at Work Regulations 1989. New UK regulations, The Control of Noise at Work Regulations 2005, to be introduced on 6 April 2006, will repeal the existing Noise at Work regulations. These new regulations will amend the first and second action levels for daily personal noise exposure. Employers must ensure that they take steps to comply with the relevant regulations.
- 11.2 The primary source of noise on aerodrome aprons are aircraft engines, APUs and support equipment such as mobile ground power units. Many of these sources are highly mobile and exhibit variability in their noise emissions. Therefore, the level of ambient/background noise and, potentially, levels of personal noise exposure, can fluctuate very significantly and can greatly exceed the action levels.

- 11.3 Employers should try to reduce the noise exposure of both their employees, and others at work on the apron exposed to the noise created by their activities, without relying on hearing protection. Some suggestions are:
- a) Where fixed electrical ground power units (with power generation sited away from employees on the apron) and fixed air conditioning units are provided on the stands, aircraft operators should make full use of these facilities to minimise the need for APUs or mobile units which generate high levels of noise;
 - b) Where existing noisy ground support plant is used it should be engineered to minimise noise output. In some instances this may require retrospective remedial action, e.g. partial enclosure, to reduce noise emission;
 - c) Before the procurement of new plant, noise emission data provided by the supplier, should be taken into account in deciding whether to purchase, and whether further protective measures may be needed. The aerodrome operator may set minimum standards for new equipment;
 - d) The amount of time that workers spend in the vicinity of noisy plant and equipment should, if possible, be minimised by planning and organising work accordingly;
 - e) Work associated with cargo holds or other service points near the APU could be undertaken when it is not running;
 - f) For vehicle operators an acoustic cab could be fitted, provided that the vehicle can be operated with the doors and windows kept closed. If this is not reasonably practicable, it may be feasible for drivers to use hearing protection.
- 11.4 The areas in which hearing protection is required should be marked and warning notices displayed, so far as is reasonably practicable. This may be difficult on the apron itself, but relatively easy within or on equipment, e.g. in cabs of vehicles where the second action level may be exceeded for part or all of the time. Signs may also be placed at apron access points.
- 11.5 On the apron one employer's activities may cause the employees of other employers to be exposed to noise. For example, high levels of noise from an APU will affect baggage handlers and others working in the vicinity of the aircraft. The various employers involved will usually need to agree who is to co-ordinate their action on noise. Normally, this will be the employer in overall control of the work. This employer should make sure that the noise exposure that his work activity generates is assessed and reduced, and that the information on noise is made available to all affected employees; the actual employer of each worker provides any training and personal protective equipment needed. In most cases exchange of information and collaboration between employers will be needed to ensure that duties are fulfilled without unnecessary duplication.
- 11.6 Where communication between personnel is essential or audible alarms are used to assure safety, a thorough assessment of the environment must be carried out to ensure that any risks that result from the use of hearing protection are properly managed.

12 Work equipment (including machinery)

12.1 General

- 12.1.1 Work equipment includes every item on the apron, including vehicles, specialist equipment such as cargo loaders, fixed equipment such as airbridges and FEGP Units and hand tools.
- 12.1.2 The hazards to health and safety and aircraft safety from work equipment can arise when it is moved, installed, used, maintained or dismantled. They include hazards from:
- Machinery
 - Hot or cold surfaces
 - Instability (collapsing or overturning)
 - Objects or people falling or being ejected from the equipment
 - Disintegration, deterioration or malfunctions in the equipment or its controls
 - Improper use of the equipment (for example using it for a purpose for which it is not suitable)
 - Fire or overheating.
- 12.1.3 Dependent on the process involved, the hazards may always be present with the equipment, (such as its weight which may affect how easily it can be moved or lifted), or transitory (such as the risk of striking the aircraft when equipment is raised or lowered).
- 12.1.4 The Provision and Use of Work Equipment Regulations 1998 (PUWER), apply to all equipment found on aprons, including belt conveyors, cargo loaders, catering trucks and baggage tugs. The regulations are supported by an ACOP.
- 12.1.5 In order to protect people and aircraft, all companies at aerodromes should ensure that:
- a) Equipment is suitable (i.e. with regard to its initial integrity, the place where it will be used and the purpose for which it will be used);
 - b) Equipment is maintained in a safe condition;
 - c) Equipment is inspected in certain circumstances to ensure that it is, and continues to be, safe for use. Any inspection should be carried out by a competent person and a record kept until the next inspection and longer if the inspection results are used for monitoring serviceability trends.
- 12.1.6 Companies should also ensure that the risks created by the use of the equipment are:
- a) eliminated, where possible; or
 - b) controlled by:
 - taking appropriate 'hardware' measures, e.g. providing suitable guards, protection devices (such as buffers to surfaces which interface with the aircraft), markings and warning devices (such as Emergency Stop buttons), and
 - taking appropriate 'software' measures, such as following safe systems of work (e.g. ensuring maintenance is only performed when equipment is shut down) and providing adequate information, instruction and training.

12.1.7 The measures should be selected on the basis of an assessment of the risks. As part of this assessment, the hierarchy of controls outlined in Chapter 1 paragraph 2.5.8 should be considered. In many cases, a combination of measures may be necessary.

12.1.8 Whatever the combination of measures, companies need to ensure that people using work equipment have received adequate training, instruction and information for the particular equipment.

12.2 **Mobile work equipment (including vehicles)**

12.2.1 Mobile work equipment poses additional hazards to people and aircraft. Such equipment or vehicles may strike people, aircraft or other work equipment. Furthermore, unless it is operated correctly and loose articles are suitably secured, objects may fall and strike people or aircraft nearby and may also create a FOD hazard.

12.2.2 Consequently, companies and their staff should ensure that where mobile work equipment is used for carrying people or objects, it is suitable for this purpose (i.e. there is proper seating and stowage areas). In some cases, measures may need to be taken to reduce the risks to the operator, any other people being carried, anyone else who might be affected (such as passers by) and aircraft. This may include measures to prevent the work equipment rolling over, or people or objects being thrown from the equipment (i.e. seatbelts or other restraints). The measures should be based on the findings of a risk assessment.

12.3 **Lifting equipment**

12.3.1 Lifting equipment also poses risks to people and aircraft. People may fall from elevated working positions, or may be struck by loads falling or released from the equipment. Lifting equipment may overturn or collapse, resulting in injury and damage. Aircraft may be struck and damaged by lifting equipment as it moves up or down.

12.3.2 All lifting equipment and lifting operations (except those done solely by manual effort without assistance from equipment) are subject to the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) as well as PUWER.

12.3.3 In order to ensure that the risks to people and aircraft are controlled, lifting equipment should be:

- strong and stable enough for the particular use and marked to indicate safe working loads
- positioned and installed to minimise any risks
- used safely, i.e. the work is planned and organised, and is performed by competent people, and
- subject to ongoing thorough examination and, where appropriate, inspection by competent people. (LOLER lays down maximum periods between thorough examinations, depending on the nature and use of the equipment).

12.3.4 It may sometimes be difficult to determine what is, and what is not, lifting equipment. At aerodromes, the following should always be considered to be lifting equipment:

- catering vehicles, ambulifts and other hi-loaders
- de-icers with a boom assembly
- cargo loaders
- mobile elevating work platforms (MEWPs, 'cherry pickers')

- lifting platforms on toilet and potable water servicing vehicles and refuelling vehicles
- forklift trucks.

12.3.5 The following are not regarded as lifting equipment or lifting operations:

- airbridges (any lifting which occurs during manoeuvring is entirely incidental to their main function)
- escalators (these have specific legal requirements under the Workplace (Health, Safety and Welfare) Regulations 1992).

12.3.6 Equipment which is subject to LOLER is also subject to the requirements of PUWER. For example, dangerous parts of machinery which are components of a piece of lifting equipment should be protected.

12.4 **New machinery**

12.4.1 Health and safety law requires that most ground support equipment supplied after 1 January 1995 should satisfy certain essential health and safety requirements laid down by the European Community and should carry a CE mark. Employers should not purchase equipment manufactured after 1 January 1995 unless it carries a CE mark.

12.4.2 However, a CE mark is not a guarantee of safety. Before purchasing a machine, users need to consider:

- a) Where and how it will be used;
- b) What it will be used for;
- c) Who will use it (skilled employees, trainees);
- d) What risks to aircraft safety and staff health and safety may result;
- e) Comparison of how well these risks are controlled by different manufacturers' equipment.

12.4.3 Manufacturers can demonstrate compliance with the essential health and safety requirements by designing and manufacturing a product to a harmonised standard. A limited number of harmonised standards specific to ground support equipment have been published. There are also a number of harmonised standards which apply to all work equipment (for example BS EN 292:1991 Safety of machinery - Basic concepts, general principles for design).

12.4.4 The British Standards Institute (BSI) is the lead body in this country for the developments of standards. Details of standards for ground support equipment and other standards can be found at www.bsi.global.com.

12.4.5 Further guidance can be found in BS EN 1915-1:2001 Aircraft ground support equipment – General requirements and BS EN 12312:2001 Specific requirements.

13 **Hazardous Substances and dangerous goods**

13.1 **Substances hazardous to health**

13.1.1 Some substances are defined as hazardous to health. These substances can be toxic, corrosive, irritant or otherwise harmful to health (e.g. biological agents). Some of these substances may also damage aircraft, for example, by corroding control surfaces.

13.1.2 Substances can be:

- a) used in a work activity (such as hydraulic oil or cleaning products); or

- b) those that arise or are encountered during a work activity (such as engine exhaust fumes, microbes in aircraft toilet waste, leaks from containers of dangerous goods).
- 13.1.3 The Control of Substances Hazardous to Health Regulations 1999 (COSHH) is the main legislation that applies to exposure to such substances. Cargoes that are hazardous to health may also be subject to the requirements for the carriage of dangerous goods (see paragraphs 13.4.1 to 13.4.4).
- 13.1.4 Companies should assess the risks arising from the work with hazardous substances. This assessment should consider the risk created by the use, handling, or release of the substance. First and foremost, the assessment should show whether exposure to the hazardous substance can be eliminated - for example, could a less hazardous substance be used instead?
- 13.1.5 If exposure cannot be prevented then it should be adequately controlled. This could be achieved, for example, by ensuring chemicals cannot splash onto people or aircraft, or that fumes cannot accumulate near to people or aircraft. The use of personal protective equipment should only be used as a last resort. However, personal protective equipment may be a useful back-up for employees undertaking such tasks as emptying and cleaning toilets, who might use protective gloves, and overalls. Eye/face protection might also be useful in some circumstances.
- 13.1.6 Companies should note that commercially supplied hazardous substances should have certain health and safety information on the container and that suppliers of substances have to make available other relevant information on a safety data sheet. This information may be used as a basis for the assessment. For other hazardous substances such as engine fumes and toilet waste, employers may need to seek specialist advice and, if necessary, arrange for atmospheric sampling or other testing to be carried out.
- 13.1.7 Certain substances used on aircraft, where appropriate, should be approved by the aircraft manufacturer but are still subject to COSHH etc.
- 13.1.8 Naturally, any control measures selected must be effective and in some instances it may be necessary to monitor the exposure of people to hazardous substances to ensure that they are not exposed to harmful levels.
- 13.2 Radioactive substances**
- 13.2.1 Exposure to substances which emit radiation can cause damage to health. Radiation may cause immediate harm, e.g. radiation burns, or may cause changes in cell DNA, which can eventually lead to cancers.
- 13.2.2 The control of risks to health from radiation is subject to the Ionising Radiations Regulations 1999 (IRR 1999) and their associated ACOP and to the Radiation Emergency Preparedness and Public Information Regulations 2001 (REPPIR). These regulations lay a number of duties on 'radiation employers', who include those who transport or store radioactive substances.
- 13.2.3 Companies need to assess the risks from exposure to radiation and to ensure that exposure is restricted. They should also have in place contingency plans. Staff working with radioactive substances, including those handling radioactive cargoes should be competent in order to ensure their safety, the safety of those working with them and the safety of the aircraft.
- 13.2.4 Under the regulations, companies may have to appoint Radiation Protection Advisors to give competent advice on the measures needed to protect staff health and safety.

- 13.2.5 Some radioactive substances may also be toxic or corrosive etc. and may, therefore, also be subject to the COSHH Regulations, as outlined above. Radioactive substances which form part of a cargo consignment may also be subject to the requirements relating to the transport of dangerous goods (see paragraphs 13.4.1 to 13.4.4).

13.3 Flammable substances

- 13.3.1 As with substances hazardous to health, flammable substances may be used as part of a process (such as aircraft repairs), handled as cargo, or encountered accidentally, for example as the result of a spillage. They may be solid, liquid or gaseous. Fire and explosion are the main hazards associated with these substances. Such events may cause considerable injury to people and damage to aircraft. However, these substances may also be hazardous to health or may damage aircraft in other ways, for example because they are corrosive.
- 13.3.2 The risks from work involving flammable substances, including storage and transport, should be assessed. Where possible, the flammable substance should be eliminated, or substituted for a substance which is non-flammable. There may be a balance to be struck between the risks involved, for example, if the proposed substitute carries a greater hazard to health than the flammable substance.
- 13.3.3 Where the substance cannot be eliminated, or substituted, then appropriate precautions need to be in place. Control of the risks of flammable substances can be considered in terms of removing at least one side of the 'Fire Triangle'. See Figure 4.

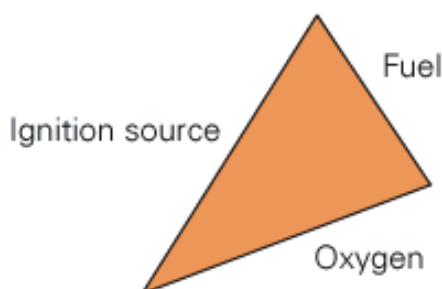


Figure 4 The Fire Triangle

- 13.3.4 This may include a combination of:
- safe storage, away from sources of ignition, incompatible substances (such as oxidisers) and mechanical damage
 - adequate ventilation to remove flammable vapours or gases
 - dispensing and decanting in a way which reduces spills and releases
 - use of equipment specifically designed for use with flammable substances
 - good housekeeping to remove flammable residues
 - adequate procedures for dealing with emergencies and spillages, including training, information and instruction for staff.
- 13.3.5 The flammable substance which is likely to be found in the greatest quantity at aerodromes is aircraft fuel. Guidance on working with fuel safely is not reproduced in this publication. Sources of detailed guidance include CAP 748 Aircraft Fuelling and Fuel Installation Management, the Institute of Petroleum publication Airports Model

Code of Safe Practice in the Petroleum Industry Part 7 and HSE Contract Research Report CRR288 Quantified risk assessment of aircraft fuelling operations. Most aerodromes will also operate 'Hot work permits' intended to reduce the risk of fire, including fuel fires.

- 13.3.6 Currently, there is no specific legislation on the use of flammable substances on the apron (although work with flammable substances in aircraft hangars may be subject to the Highly Flammable Liquids and Liquefied Petroleum Gases Regulations 1972). However, the EU has adopted two Directives, Council Directive 98/24/EC, the Chemical Agents Directive (CAD), and Council Directive 1992/92/EC, the Protection of Workers Potentially at Risk from Explosive Atmospheres Directive (ATEX)¹. These Directives will apply to all areas of aerodromes.

- 13.3.7 Flammable cargoes may also be subject to the requirements relating to the transport of Dangerous Goods (see paragraphs 13.4.1 to 13.4.4).

13.4 **Transport of Dangerous Goods**

- 13.4.1 The transport of Dangerous Goods is covered by The Carriage of Dangerous Goods by Road Regulations 1996 (CDG Road) and the Air Navigation (Dangerous Goods) Regulations 2002 (ANO(DG)).
- 13.4.2 Transport of dangerous goods by air is also subject to the IATA Dangerous Goods Regulations and the ICAO Technical Instructions. Further advice on these standards can be obtained from the Dangerous Goods Office of CAA SRG.
- 13.4.3 Note that compliance with these standards does not necessarily mean that the requirements of UK law covering transport of Dangerous Goods by other modes of transport have been met.
- 13.4.4 Similarly, compliance with the standards relating to the transport of Dangerous Goods by air does not guarantee that the requirements of COSHH or IRR 1999 have been met, and vice versa.

14 **Inadequate Lighting, Glare and Confusing Lights**

- 14.1 During darkness and periods of low visibility apron areas must be provided with a good standard of lighting of sufficient coverage and brilliance to enable pilots and ramp staff to operate safely and effectively. The levels of luminance on aircraft stands must comply with the standards described in CAP 168 Licensing of Aerodromes.
- 14.2 Regulation 8 of the Workplace (Health, Safety and Welfare) Regulations 1992 (Workplace Regulations) and the associated ACOP detail the requirements under health and safety law.
- 14.3 Care must be exercised to ensure that no lighting installation can give distracting or confusing signals to pilots or cause dazzle or glare for any people on the airfield, including ATC staff in the visual control room.
- 14.4 It is equally important that every workplace has suitable and sufficient lighting to ensure people can work safely. In general, lighting should achieve a reasonably uniform illuminance on all relevant work areas and should avoid sudden changes in luminance (for example, where apron roads run underneath buildings). However, there may be a need for local lighting at specific areas where people are at work, for example within aircraft cargo holds.

1. The ATEX Directive will come into force in May 2003.

- 14.5 Aerodrome operators should introduce arrangements to control and co-ordinate the provision/installation of airside lighting systems.
- 14.6 The introduction of many new lighting installations which fall outside the regulations governing Aeronautical Ground Lighting (AGL) are subject to prior approval by the CAA SRG. Large systems should always be subject to an operational trial, including where judged necessary a flight trial, to confirm the best adjustments for the luminaires. Apron lighting should be regularly checked for damage and disturbance of the settings of the luminaires.
- 14.7 Area lighting is normally mounted on pylons or gantries and should be subject to the following:
- a) The mounting height, brilliance and mounting angles of the luminaires should achieve the illuminance and fall of light required without causing dazzle to pilots and other persons;
 - b) The layout of mounting pylons should be such that overlapping cover is provided which does not give rise to areas of deep shadow, such as on the 'lee side' of a large aircraft;
 - c) Floodlighting, including mobile equipment, in contractors' work areas should be strictly controlled and subject to regular checks to ensure that glare/dazzle are eliminated.
- 14.8 To avoid dazzle, vehicles on the aprons must use dipped headlights whenever vehicle lights are required.
- 14.9 Any lighting used on the apron must not conflict with aircraft guidance systems and if coloured lights are used they must not be capable of confusion with colour coded aviation lights.
- 14.10 Illuminated stand designator signs should, where possible, be prominently placed at a standard position at the head of stand to give unambiguous indication to pilots of stand location/identification.
- 14.11 Where the location of lighting for aerodrome landside sites, is visible from the airfield, the levels of brilliance and direction of any light display should be such that there is no glare or dazzle to confuse or distract pilots or ATC staff.
- 14.12 Lighting of non-aerodrome sites in the vicinity of aerodromes may be subject to planning permission. Further guidance can be found in BS 5489 Road Lighting.
- 14.13 Traffic lights controlling crossings of taxiways/taxilanes should be clearly identifiable to vehicle drivers but must be shielded from the vision of pilots.
- 14.14 Guidance on the design, installation and maintenance of Aeronautical Ground Lighting with reference to the safety of personnel is given in paragraphs 17.1 to 17.8.

15 Adverse weather conditions (including Winter operations)

15.1 Adverse Weather Conditions

Besides snow and ice, other adverse weather conditions affect the safety of aircraft operations on aprons, principally strong surface winds and low visibility conditions. As part of the safety management system, aerodrome operators should issue information about the precautions to be taken in anticipation of these conditions and with emphasis on the safety requirements for apron operations.

15.2 **Strong Winds**

- 15.2.1 When meteorological warnings of strong winds are received, they should be promptly relayed to airlines and operators.
- 15.2.2 When strong wind conditions are experienced, the first problems encountered are of light FOD being carried across the airfield, causing engine ingestion threats to aircraft on stands, taxiways and runways. Plastic bags and sheeting are particular problems.
- 15.2.3 As wind speeds rise, baggage containers, unsecured equipment, large debris (mostly from the aprons), can be blown across the Movement Area causing a damage hazard to aircraft in all areas. There is also a risk of personal injury and damage to vehicles and equipment by 'flying' debris. The principal requirements and precautions are included in the model procedures at Appendix H to this Chapter.
- 15.2.4 It is not always feasible or necessary to position a large aircraft into wind at aerodromes. Where there is a requirement for aircraft to be positioned into wind and/or picketed, this should be the responsibility of the airline manager, agent or owner concerned. Aerodrome operators may assist by the allocation of suitable stands and other airfield areas for this purpose.
- 15.2.5 As wind speeds rise, there is a requirement for airline managers, agents or owners concerned to ensure that windmilling propellers and rotors are feathered and/or secured.

15.3 **Low Visibility Procedures (LVP)**

- 15.3.1 Aerodrome operators will have in place comprehensive arrangements and rules to safeguard low visibility operations on the manoeuvring area and these issues are not discussed in detail here. Further information about the implementation of low visibility operation and procedures can be found in CAP 168 Licensing of Aerodromes and in the relevant Aerodrome Manual.
- 15.3.2 In most airfield layouts, aprons border directly on to the taxiway system, therefore, when LVPs are in force, there is an impact upon apron operations and there is a requirement for ramp staff to be aware of the implications for taxiway operations and to comply with any requirements and limitations that are notified.
- 15.3.3 Visibilities which might qualify as low in aircraft operational terms might be considered reasonable by some aerodrome users. When visibility is reduced however, it must be ensured that staff are aware of the additional safety requirements to maintain safe operations.
- 15.3.4 A model Safety Instruction that may be suitable for issue by an Aerodrome Authority dealing with Strong Winds is included at Appendix J to this Chapter.
- 15.3.5 A model Safety Instruction that may be suitable for issue by an Aerodrome Authority dealing with Apron Operations in Low Visibility Conditions is included at Appendix K to this Chapter.

15.4 **Winter operations**

- 15.4.1 Managers of aerodromes that continue to operate during severe winter conditions of snow and ice are recommended to agree and publish a comprehensive snow clearance plan. The equipment and manpower will be dictated by the scope of the plan itself, but should be sufficiently flexible to deal with the full range of extremes that can be expected locally. Many aerodromes participate in the National Snow Plan and will adopt the priorities for snow and ice clearance and reporting procedures described in the Plan (see UK AIP AD 1.2.2 for further details).

- 15.4.2 During winter conditions additional precautions and arrangements are required, by all those involved with airside operations. Before the winter season starts, safety instructions should be issued to highlight the hazards of winter operations and detail the measures to be taken to mitigate the effects on the apron. It is good practice to arrange briefings for the managers and staff of user airlines/companies on working and operating in winter conditions.
- 15.4.3 The aerodrome operator should establish that they, airlines and handling agents have arrangements in place for the following:
- a) The treatment and de-icing of aprons and airside roads, with particular attention to taxiways, stands and push-back areas;
 - b) The clearance and de-icing of critical areas peripheral to stands such as loading bridge movement areas, bridge steps and drive wheels, passenger routes (including external steps and ramps), FEGP units and other fixed service equipment. The de-icing method should not introduce slip and trip hazards of its own;
 - c) Where an aircraft is occupying a stand, the use of sprays or other means to clear and de-ice aircraft wheels, wheel runs/ruts and access routes for loading baggage, freight and catering;
 - d) When meteorological frost/snow warnings are received and when freezing conditions are expected or observed, warnings should be transmitted to all apron operators and staff by the best local means;
 - e) Additional apron inspections should be introduced to detect freezing hazards;
 - f) Where possible, apron areas should be set aside for the parking of aircraft de-icing rigs and the storage of bulk de-icing agents.
- NOTE:** Only anti-icing and de-icing agents specifically approved for use on aircraft or airside areas should be used.
- 15.4.4 Airlines and operators should be required to take special care to avoid spillages of water on aprons during freezing conditions and the washing of vehicles/equipment and the flushing of tanks, except into containers, should be prohibited in all airside areas.
- 15.4.5 Airlines and operators should be urged to undertake self-help measures to clear and de-ice equipment and vehicle parking areas and should be required to remove their equipment from such areas to enable clearance/de-icing to be completed. Handlers should be required to tow-off static aircraft when requested, to enable stand clearance/de-icing to be completed.
- 15.4.6 A model Safety Instruction that may be suitable for issue by an Aerodrome Authority dealing with Winter Operations and Apron Hazards is included at Appendix L to this Chapter.

16 Slips and trips

- 16.1 Slips and trips account for almost a quarter of accidents to people at aerodromes. Whilst some of these accidents are difficult to prevent, many could be avoided by simple measures which can and should be taken. Regulations 12 and 13 of the Workplace Regulations are the relevant legislation.
- 16.2 Slips and trips may be caused by a variety of obstructions, loose items and defects in walkways, stairs and other areas. Loose items include FOD, which is of course a source of risk to aircraft as well. Improperly stowed cables (for example, from fixed

or mobile electrical ground power units) can also cause people to trip over. Slips can be caused by spillages, for example from hydraulic leaks.

- 16.3 The initial design and construction of work areas can contribute as much to the risk of slips and trips as to its reduction. Sudden changes in level, poor drainage, insufficient surface roughness of the floor can all increase the risk of slips or trips. The aerodrome operator should ensure that the risks from slips and trips are considered at the design of new or refurbished facilities, and are eliminated or controlled by good design, as much as possible.
- 16.4 Poor maintenance of surfaces can also contribute to the risk of slips and trips. Damage such as potholes and excessive wear increase the risk that slips will occur, as well as also being a potential source of FOD. Aerodrome maintenance programmes should be developed by the aerodrome operator to discover areas in need of attention before they become a source of danger. Airlines and ground handlers should assist, for example by reporting parts of the apron which have been damaged, or are becoming excessively worn.
- 16.5 Dealing with the temporary sources of risk, such as FOD requires the whole aerodrome community to play a part. Loose items should be removed by whoever notices them; some of them will only be suitable for the FOD bin. Larger items, such as cables, should be reported to the owner of the piece of equipment concerned, who should in turn have the items removed or tidied away promptly. If the owner of a larger piece of equipment cannot be established, the FOD should be reported to the aerodrome authority.

17 Electrical Hazards

- 17.1 There are a variety of sources of electrical hazards on the apron, including lighting, fixed or mobile electrical ground powers units, power supplies to other apron equipment (such as airbridges) and the aircraft itself. The Electricity at Work Regulations 1989 are the principal health and safety legislation, but the requirements of PUWER relating to inspection of work equipment will also apply to many electrical systems on the apron.
- 17.2 Again, design and installation can significantly reduce risk. Proper means of isolation should always be provided to electrical systems. These should be lockable. Where possible, isolators should be designed so that people cannot gain access to parts which carry dangerous electrical currents unless the power is switched off. The aerodrome operator should ensure that redundancy is designed into systems where isolation would cause severe inconvenience (for example, as with the AGL system), so that one circuit can be isolated and worked on safely, whilst the second circuit keeps vital services operating.
- 17.3 Electrical equipment should always be used safely. Plugs should be used with the sockets for which they were designed. Circuits should not be overloaded, and should be suitable for the environment in which they are used. Cables should not be left in positions where they could be damaged.
- 17.4 Of particular note is the use of ground power units (GPUs). Many GPUs have an electrical interlock which detects when the aircraft is connected. This interlock can be bypassed. However, this facility is intended for maintenance purposes only. Interlocks should not be bypassed, even temporarily, whilst the GPU is in normal use. If the GPU will not operate unless the interlock is bypassed, then the GPU is faulty, and it should be withdrawn from service for repair.

- 17.5 All electrical systems should be properly maintained. This will require a programme of inspection and test to identify defects before they become a source of danger. It also requires everyone promptly to report to their employer, and/or the operator or owner of the equipment, any defects they discover during the course of their work. All maintenance of electrical systems should be carried out by competent people to an adequate standard.
- 17.6 Maintenance on all electrical systems (including those onboard aircraft) should always be carried out safely. Preferably, systems should be isolated from all sources of electrical power and 'proved dead' by testing. All sources of supply should be locked open whilst work is in progress. Where systems contain capacitors which could retain a significant amount of stored energy, this energy should be safely discharged before work commences and capacitors should be left shorted out whilst work is in progress.
- 17.7 Work on, or adjacent to, exposed live electrical systems should only take place as a last resort when isolation would give rise to other significant hazards to health and safety, or when there is no other way of determining the source of the fault. In these circumstances, those involved should be specifically authorised and be using a safe system of work, with appropriate PPE, tools and equipment, supervision, training, information and instruction in place.
- 17.8 Where contractors are to be used to undertake electrical work, they should be subject to the assessment, control and monitoring arrangements outlined in Chapter 1 paragraphs 2.6.1 to 2.6.6.

18 Faults and defects

- 18.1 Aerodrome operators should promulgate and maintain comprehensive fault reporting procedures for all apron equipment and installations provided by the aerodrome. Clear instructions should be issued and repeated by notice at main installation sites.
- 18.2 For staff of airlines or operators, simple 'one shot' fault reporting is best. Faults on vital operational equipment, or facilities, that could affect aircraft safety, such as airbridges and VDGS, should be reported to a single agency. An operations centre or safety unit is best. By this means the appropriate and immediate safety decisions can be made/actioned and at the same time a prompt engineering response can be initiated.
- 18.3 Details of all reported faults and their rectification should be recorded for management audit purposes.
- 18.4 For faults where a hazard to aircraft existed or was thought possible, consideration should be given to filing an MOR. Further details can be found in CAP 382 The Mandatory Occurrence Reporting Scheme.
- 18.5 Some faults may also be serious enough to require reporting to the HSE under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR), even if they also qualify as an MOR. These include the collapse or overturning of any lifting equipment, certain electrical short circuits or fires, and collapse of certain scaffolding.
- 18.6 Reports under RIDDOR should be made to the Incident Contact Centre, Caerphilly Business Park, Caerphilly CF83 3GG (Tel 0845 300 9923, Fax 0845 300 9934, e-mail riddor@natbrit.com, internet www.riddor.gov.uk).
- 18.7 Further guidance on maintenance and inspection of equipment is given in paragraphs 12.1.5, 12.3.3 and 17.5 to 17.8.

- 18.8 All employers should ensure that there are systems in place to enable staff to report defects and faults in company equipment. Action should be taken on these reports, within in a timescale which reflects the seriousness of the defect or fault and the risk to people and/or aircraft.

19 Movement Area Inspections

- 19.1 The requirement for inspections and maintenance of airfield facilities is implicit in the aerodrome licensing process and the associated legislation. The Aerodrome Manual must contain the requirements and accountabilities for the inspection and auditing of all the safety systems airside on a systematic basis. The results should be recorded/ reported and fed back into the safety management system.
- 19.2 Aerodrome operators should maintain inspection schedules for all apron equipment and facilities it provides. The results of these inspections should be recorded. Serviceability/availability records should be maintained on the principal systems for audit and management purposes.

Appendix A Model Ramp Operation Procedures - Aircraft Chocking

Important note: This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

MANPOOL GROUND HANDLING

RAMP OPERATION PROCEDURES

PROCEDURE No. X - AIRCRAFT CHOCKING PROCEDURES

DATE OF ISSUE 1 SEPTEMBER 2002

1 Introduction

- 1.1 Aircraft chocks are used to prevent the movement of an aircraft whilst on the ground.
- 1.2 The method used for chocking will vary depending upon the aircraft type and the requirements of individual airline operators. These procedures are minimum company requirements.
- 1.3 In adverse weather conditions, particularly periods of high winds, the chocking procedures will change and high wind procedures must be followed.
- 1.4 Aircraft type or operator specific instructions, are appended to this procedure and must be followed where appropriate.

2 The Procedure

2.1 Aircraft arrival

- Prior to aircraft arrival you must ensure that you have the correct number of chocks available and that you are positioned behind the aircraft stop line.
- All engines must be spooled down and anti-collision lights off before the chocking process begins.
- Multi-engine propeller driven aircraft are normally to be chocked at the nose wheel by placing one chock forward and one aft of the nose wheel. Single engine propeller driven aircraft should be chocked fore and aft of the main wheels
- All jet aircraft are to be chocked fore and aft of the outer main wheels.
- Always approach aircraft from the head of the stand and where possible avoid approaching from the side.
- When placing the chock in position leave a 1" gap between chock and tyre for ease of removal.
- Never place your hand between the chocks and the tyre.

- Once the chocks are in place, stand in clear view of the flight deck and use the appropriate recognised hand signal to confirm 'chocks in' by placing both hands above the head, fists clenched with thumbs extended inwards.
- Repeat the 'chocks in' signal to the flight dispatcher if an air jetty is to be docked onto the aircraft.

2.2 Aircraft departure

Pushback

- Chocks should only be removed at the request of the aircraft commander.
- Ensure that all chocks are removed before pushback commences.
- If a chock is found to be stuck it may be removed by tapping with a spare chock or by easing the aircraft off of the chock after the aircraft brakes have been released using the tug and tow bar.
- If a chock still cannot be removed request the advice of the Crew Chief.
- After removal chocks must be returned to their designated storage area.

Powerback

- When requested by the aircraft commander, the wingman will remove the chock positioned aft of the nose wheel.
- The chock forward of the nose wheel must remain in position until the aircraft has powered away.
- After removal, chocks must be returned to their designated storage area.

Free Standing Aircraft

- Chocks should only be removed at the request of the Crew Chief.
- One chock should normally remain forward of the nose wheel until the engine start sequence has been completed and the 'chocks away' signal is received from the flight deck. Single engine propeller driven aircraft should remain chocked forward of the main wheels until the 'chocks away' signal is received from the flight deck.
- The Crew Chief will return the 'chocks away' signal by placing both hands above the head; fists clenched with thumbs extended outwards as part of his sign off procedure.
- After removal chocks must be returned to their designated storage area.

3 Key Safety Points

- Only trained and authorised personnel or trainees under supervision are allowed to chock or unchock aircraft.
- Operating procedures and safe working practices must be followed at all times.
- Correct manual handling techniques must be used when lifting and carrying chocks.
- Never approach an aircraft until the engines have spooled down and the anti-collision lights have been turned off.
- Never remove chocks from an aircraft without the permission of the flight deck or the Crew Chief.

Appendix B Model Safety Instruction - Operation of Visual Docking Guidance System

Important note: This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

MANPOOL AIRPORT

SAFETY INSTRUCTION NO X/200-

OPERATION OF AIRCRAFT VISUAL DOCKING GUIDANCE SYSTEMS

1 Introduction

Most aircraft parking stands at Manpool are equipped with Visual Docking Guidance (VDGS). When a stand is not equipped, or the VDGS is unserviceable or not calibrated for a particular type of aircraft, a marshalling service must be provided.

2 System

The Visual Docking Equipment (VDE) provides both directional and stopping guidance. The azimuth display is aligned for interpretation from the left hand flight deck seat. Details of the VDE system and instructions for its use by pilots are contained in UK AIP.

3 Responsibility for Operation of VDGS

- 3.1 The system is switched on by airline or handling staff. In the case of airbridge served stands, one set of VDE control switches are mounted in a panel in the airbridge cab; a second set of switches are mounted in a conspicuously marked panel in a prominent position at the head of stand. Either set of switches will operate the equipment and on all pier served stands timer switches are used which automatically switch off the VDE after 10 minutes. On non pier served stands a single set of switches is provided, mounted in a conspicuously marked panel at the head of stand; the VDE on these stands do not have timer switches and the VDE must be switched off when the aircraft is safely parked on the stand.
- 3.2 Airline or handling staff must ensure that the stand is unobstructed by vehicles or equipment and that the airbridge is retracted and correctly parked before the arrival of the aircraft and before switching on the VDGS. Switching on the VDGS signifies to the aircraft commander that these actions have been completed and it is safe for the aircraft to enter the stand. Once the VDGS has been switched on, the person responsible for stand safety and VDGS operation must not leave the stand until the aircraft has parked, unless the VDGS is switched off again.

4 Marshalling Service

- 4.1 A marshalling service is provided on those stands not equipped with VDGS or with known unserviceabilities. The marshalling service is also available on request to all airlines by calling the Manpool Airfield Safety Unit on telephone ext. 3456.
- 4.2 The Eastern apron at Manpool is an open apron for use by General Aviation (GA) aircraft. Also, a group of stands in the South Area are configured with Multiple Aircraft Ramp System (MARS) centrelines. All aircraft using MARS centrelines will be marshalled on stand and all aircraft using the open GA apron will be marshalled.
- 4.3 The Airfield Safety Unit should be called to assist if airline staff are in any doubt about safety or the VDGS equipment that is available.
- 4.4 During aircraft emergencies and at other times when the resources of the Airfield Safety Unit are fully committed, marshalling staff may not be able to attend before the aircraft arrives. Accordingly handling staff should give the flight deck crew assistance to stop short safely on the stand centreline and await the arrival of the marshallers.
- 4.5 When directing an aircraft, with his/her attention firmly fixed on that aircraft, a marshaller is at risk from vehicles. Drivers must be alert to the presence of one or more marshallers and always give way. Personnel must not walk or drive between an inbound aircraft and a marshaller directing that aircraft under any circumstances.

5 Airbridge Unserviceability

When an airbridge is out of service or cannot be fully retracted and/or parked in its safe position, the stand will be withdrawn from use or, if practicable, allocated to aircraft types that can safely be marshalled on to a 'Stop Short' position clear of the airbridge. The decision for a 'Stop Short' operation may well affect other operations. See 6.2 below.

6 Stop Short Procedure

- 6.1 The need to 'Stop Short' will be indicated to the flight crew by one of three methods:
 - a) An electronic sign, mounted above the VDE display which flashes in red – STOP SHORT. The switches for these signs are co-located with the VDGS switches both in airbridge cabs and also at head of stand locations, the switch function is prominently marked;
 - b) On stands equipped with rail drive bridges by a conspicuous painted 'STOP SHORT' sign mounted on the taxiway side of the airbridge cab;
 - c) By marshalling signals.
- 6.2 It is essential that the Manpool Operations Centre and the Airfield Safety Unit are notified immediately if it is intended to stop an aircraft short. The Airfield Safety Unit will assess the precise Stop Short capability of the stand for the aircraft type specified and provide marshalling assistance as necessary.
- 6.3 Whenever a 'STOP SHORT' sign is displayed, and in the absence of marshalling signals, pilots should enter the stand using the centreline for guidance and stop the aircraft before reaching the airbridge or any other obstacle. The stopping position should be as far forward as possible consistent with safety and the ability to serve the

aircraft door(s) with steps. If the aircraft tail is not clear of the taxiway/taxilane ATC should be advised.

- 6.4 The 'STOP SHORT' indication will be removed by Manpool Engineers when they have repaired and retracted the airbridge.

7 Emergency Stop Procedure

- 7.1 The Emergency Stop facility is provided to enable an instant warning to be given to pilots that there is an immediate safety threat to their aircraft, or to personnel on the apron, and that the aircraft should be stopped immediately to avert the danger.
- 7.2 The need to make an Emergency Stop is indicated to the pilots by the illumination of a flashing red electronic EMERGENCY STOP sign which is positioned beside the VDE display.
- 7.3 Two switch locations are provided for the Emergency Stop system. One gated switch is fitted in the airbridge cab co-located with the bridge controls; a second gated switch is located at a prominent and conspicuously marked position at the head of stand at apron level.
- 7.4 Whilst an aircraft is moving on the stand, a responsible member of the operator's staff must be located at the head of the stand switch. Any person (irrespective of employer or function) who perceives a safety threat should activate the system, or request the staff member at the switch to activate the system, to tell the pilot to stop.
- 7.5 The pilot will normally advise Air Traffic Control that an Emergency Stop on stand has been made. If appropriate, Air Traffic Control will initiate a 'Local Standby' emergency response, in accordance with Manpool Emergency Orders. The Manpool Fire Service and the Airfield Safety Unit will then attend the incident and take any safety action required.

8 VDGS Safety Summary

Airline and handling staff receiving an arriving aircraft should:

- a) Arrive at the allocated stand in good time before the aircraft;
- b) Check that the airbridge is safely parked/retracted and that there is no other obstruction or FOD on the stand;
- c) Display 'STOP SHORT' if necessary. Report this event to the Manpool Operations Centre and the Airfield Safety Unit;
- d) Switch on the VDGS when the stand is safe for use by an aircraft and, for non-timer systems, switch it off again when the aircraft has come to a halt;
- e) Summon marshalling assistance if there is any doubt whether the stand can be used safely.

9 Mirror Docking Guidance System

- 9.1 Stands F3 and F5 are equipped with a mirror docking guidance system. Stand centreline stop markings are provided for all aircraft types permitted to use the stands. A description of the mirror system and the pilot's operating procedures are published in the UK AIP.

- 9.2 The indication to pilots that the stand is safe for their use is a single mast-mounted green light located above the mirror. The associated switch control is on the base of the mast. Airline and handling staff must ensure that the stand is free from obstruction before switching on the green entry light.

10 General

Any questions relating to this safety instruction should be addressed to Manpool Airfield Operations Department, telephone 1234-5678.

Appendix C Model Ramp Operation Procedures - Aircraft Push-back (Conventional Tugs)

Important note: This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

MANPOOL GROUND HANDLING

RAMP OPERATION PROCEDURES

PROCEDURE No. X AIRCRAFT PUSHBACK

DATE OF ISSUE 1 September 2002

1 Introduction

1.1 Pushback

This procedure describes the pushback operation in which an aircraft is pushed backwards from its parking gate by a tug or tractor, to a position on the taxiway where it can safely move off under its own power.

1.2 Tractor/tug

- 1.2.1 A vehicle designed specifically to move aircraft on the ground, the usual design will be a four wheeled vehicle that connects to the aircraft using a tow bar. Procedures for Towbarless Tug Vehicles (TLTV) are published.

1.3 Safety

- 1.3.1 Safety is an essential part of all ramp procedures and you must always consider how safe every activity you undertake is. Most ramp procedures will be working with dead aircraft i.e. the aircraft is stationary and all engines are switched off. During any pushback procedure you will be working with live aircraft, this means that the aircraft will be moving with the aid of the tug, also the engines will be starting at some time prior to, during, or after the pushback.
- 1.3.2 As well as your own safety it will be your responsibility as part of the pushback team to ensure the safety of those around you, whether directly involved in the pushback or on surrounding stands.
- 1.3.3 Communications during the pushback will come in the form of hand signals or headset communications, in whichever form you give or receive instructions you must ensure that they are clearly understood, should there be any doubt then the instructions must be clarified before any part of the pushback procedure is undertaken.
- 1.3.4 **Remember!** During the pushback the captain passes control of his aircraft to the pushback crew. You now have a live aircraft full of fuel and passengers and the safety of everyone concerned is paramount.

- 1.3.5 Irrespective of any ATC clearance or information given to you by the crew of the aircraft, while you are pushing or towing an aircraft, you are responsible for avoiding collisions with other aircraft, vehicles, buildings and obstructions.

2 Procedures – Conventional Tug and Towbar

2.1 Selection of Tug and Towbar and Bypass pin

- First select the correct bypass pin.
- Bypass pins are machined to fit exactly in the systems of specific aircraft and only the correct pin can be used.
- Failure to use the correct bypass pin or any pin at all may result in damage to the aircraft and/or towbar and could endanger the pushback crew.
- Also remember to only use a pin that is marked as serviceable.
- Select the correct towbar. All towbars are designed to fit a range of particular aircraft types and are labelled accordingly, and if you are unsure of the suitability of a particular towbar you should consult your supervisor.
- Failure to use the correct towbar may result in damage to the aircraft.
- Select the correct tug.
- The model of tug to be used for each aircraft type is shown in the Annex to this Procedure. If the correct tug is not available you should consult your supervisor.

NOTE: The Annex is not reproduced in this model document.

- Carry out a full pre-trip inspection of both tug and towbar before use.
- Towbars should always be pulled behind the tug when driving to and from the aircraft, never pushed.

2.2 Arrival at the aircraft.

- On approaching the aircraft the tug driver should carry out a brake check (at least 10m away from the aircraft), before lining up with the aircraft nose gear and stopping at a suitable distance from the aircraft to allow for tow bar connection.
- The towbar should now be uncoupled from the rear of the tug and aligned with the connection point of the aircraft nose leg.
- The steering bypass pin (if required) should now be fitted and permission sought from the flight deck crew for tow bar connection.
- The towbar can then be safely connected to the aircraft.
- If the towbar has an adjustable wheel carriage, this should be used to minimise the need to physically lift the bar.
- To connect some towbars may require the assistance of one or more other members of staff.
- You should always use correct lifting techniques, and be prepared to seek assistance when connecting or disconnecting towbars to prevent personal injury.
- When the towbar (and bypass pin if required) is correctly connected to the aircraft the tug can be driven very slowly forward to connect to the eye of the towbar.
- A guide person (usually the headset operative) is required for this operation, using recognised hand signals.

- This operation must be carried out under complete control, as any excess force used during the coupling of tug and bar could result in damage to the aircraft or towbar.
- If the tug is to be left unattended after it has been connected to the aircraft, the engine should be switched off and a wheel chocked for safety.

2.3 **The commencement of the pushback.**

- Prior to the commencement of the pushback you, the driver, will have carried out the pre-departure walkround as detailed earlier in these procedures and liaised with the headset operative to ascertain the type of pushback to be carried out.
- Now remove the wheel chock securing the tug (if applicable), and
- When seated safely in the tug check that Neutral or Park have been selected and the parking brake is applied before starting the engine.
- Wait for the 'brakes released' signal from the headset operative (as detailed in the section on hand signals).
- When the 'brakes released' signal is received, select the required direction of travel and the correct gear (for most pushbacks first gear will suffice), and while holding the tug on the foot brake, release the parking brake and then after a final visual check to confirm that it is safe to move off, slowly release the foot brake using the power of the engine tickover to gently take up any slack between tug/bar and aircraft.
- Using the throttle, slowly increase the power to set the speed of the pushback to a pace where the headset operative can comfortably hold position with the tug and aircraft without having to either run or dawdle.
- Where possible, the headset operative should always walk on the inside of a turn and he must remain in full view of both the flight deck and the tug driver throughout the pushback.
- You must remain fully aware of the position of other members of the pushback team at all times and be prepared to stop if you lose sight of any team member.

2.4 **Continuation of the pushback**

- The pushback should continue at a safe walking pace, and any changes of direction (turns) should be kept to the minimum necessary to achieve the final positioning of the aircraft at the release point. You should not attempt to change gear during the pushback manoeuvre.
- When turning the aircraft you must be careful not to exceed the limits marked on the nose leg or fuselage as to do so will result in severe damage to the aircraft's steering mechanism.
- The red line on the wheel bay doors shows the limit of turn allowable during a normal pushback operation, to exceed these lines without 'breaking' the steering scissors will result in damage to the aircraft steering mechanism even with a bypass pin in place.

2.5 **Completion of the pushback**

- As you come to the final few metres of the push back, you should endeavour to align the tug and towbar with the aircraft fuselage, this will make the disconnection process easier and far safer.
- You should slowly reduce the throttle power to tickover, and then gently apply the foot brake to finally stop the aircraft. Only when you are sure that a complete stop

has been reached and you have selected neutral gear should you give the headset operative the 'brakes set' signal.

- The headset operative will signal confirmation when the aircraft brakes are 'set' and move in to lower the towbar wheel carriage. When the wheels are supporting the towbar the headset operative will remove the tow pin (this may require a slight forward or rearward movement of the tug to facilitate) to allow the tug to move clear of the aircraft.
- The tug should pull away from the tow bar eye (to a distance of at least 5m) to allow the bar to be safely removed from the aircraft.
- The headset operative can now disconnect the bar from the aircraft nose leg. If the disconnection process requires two men, the tug driver should place the tug at ninety degrees to the aircraft after pulling back from the towbar eye and select Neutral/Park gear, apply the park brake and then assist with the towbar.
- Re-couple the towbar to the tug and then drive to the apron edge adjacent to the aircraft and await its departure.
- When the headset operative has released the aircraft, after showing the flight deck that he has removed the steering bypass pin (if fitted) and returned to the apron you should connect the bar to the rear of the tug in readiness to return to the park when the aircraft taxis away.
- The disconnection of tug and bar from the aircraft is a 'safety critical' time requiring a high level of concentration by all concerned.
- Under no circumstances should any bypass pin be removed before the towbar is disconnected and clear of the aircraft.

3 Key Safety Points

- Only trained and authorised personnel or trainees under instruction may perform the pushback operation.
- Always select the correct tug, towbar and bypass pin for the aircraft type and series to be pushed back.
- Follow operating procedures and safe working practices at all times.
- Remain aware of other persons at all times and be prepared to stop the pushback if safety is compromised.
- Take account of the prevailing weather conditions when assessing the safety of the operation.

Appendix D Model Ramp Operation Procedures - Towbarless Tug Vehicle (TLTV) Operation

Important note: This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

Towbarless Tug Vehicle (TLTV) Operation

1 Introduction

1.1 Pushback

The procedure where an aircraft is pushed backwards from its parking gate by a towbarless tug to a position on the taxiway where it can safely move off under its own power, or be towed away.

1.2 Tug

The tug is specifically designed to move aircraft without the use of a conventional towbar

1.3 Safety

- 1.3.1 Safety is an essential part of all ramp procedures. Many ramp procedures will be working with 'dead' aircraft, i.e. the aircraft is stationary and the engines switched off. During any pushback procedure, however, the aircraft will be 'live'. This means that the aircraft will be moving with the aid of a tug and, if the aircraft is departing, the engines will be starting at some time prior to, during or after the push.
- 1.3.2 As well as your own safety it will be your responsibility as part of the pushback team to ensure the safety of those around you, whether directly involved in the pushback or on surrounding stands.
- 1.3.3 Communications during the pushback will come in the form of hand signals or headset communications. Whichever form in which you give or receive instructions you must ensure that they are clearly understood – standard hand signals should be used at all times. Should there be any doubt, the instructions must be clarified before any part of the pushback procedure is undertaken.
- 1.3.4 **Remember!** During the pushback the captain passes control of his aircraft to the pushback crew. You can now have a live aircraft full of fuel and passengers and the safety of everyone is paramount.
- 1.3.5 Irrespective of any ATC clearance or information given to you by the crew of the aircraft, while you are pushing or towing an aircraft, you are responsible for avoiding collisions with other aircraft, vehicles, buildings and obstructions.

2 Ramp Operating Procedures

2.1 Preparation

- Before starting the procedure ensure that the TLTV is approved for use on the particular aircraft type and that the aircraft operator has approved the use of TLTV on its aircraft. Refer to the aircraft type/operator panel in the tug.
- Before driving the TLTV make sure a pre-trip inspection is carried out.

2.2 Starting and Manoeuvring

- Start the tug by turning the ignition key. A buzzer will sound to indicate that the tug is not yet ready for operation. When the buzzer has stopped (which should only be a few seconds) check the operating panel for fault warning lights. If any fault or warning lights are displayed, switch the tug off and report the unserviceability to your Supervisor.
- Go to the gate and cradle controls –the closed position is indicated by a green light and the lowered position is indicated by a red light. If necessary, move the joystick into the raised position and wait for the green light to come on.
- When the green light comes on make sure the cab is facing away from the drive wheels. If the cab is facing the drive wheels use the cab rotate button to turn the cab around.

NOTE: The cab will only rotate if both doors are closed and the tug is in Neutral gear.

- 3rd gear must be selected when positioning the TLTV from the parking area to the aircraft. The TLTV must not be driven from the parking area with the cab facing the drive wheels. This position is for positioning on and off the aircraft and pushback only.
- On arrival at the aircraft ensure that the steering bypass pin is inserted. Inform the flight crew that you are going to connect the tug before moving the tug into position.

3 Aircraft Attachment

- To position the tug at the aircraft, rotate the cab so you are facing the drive wheels.
- Position the TLTV using the red guide line that runs down the body of the tug. Aim the red line at the centre of the nose gear.
- Drive towards the nose gear and stop 2m from it. Engage the hand brake and put the TLTV into Neutral gear.
- Check that there are no surface mounted taxiway/stand light fittings that could foul the lowered cradle. If there are, a conventional towbar must be used.
- Move the joystick into the 'lowered' position and hold there until the red 'lowered' light is indicated.
- Check that the tug is set for the correct wheel size and wheelbase. If not, adjust the wheel size using the wheel size buttons.
- Put the tug into 1st gear and drive towards the aircraft so that the cradle is positioned either side of the nose gear.

NOTE: When the tug is driven in the lowered and opened position the buzzer will sound to let the driver know that the cradle and gate are open and lowered.

- When positioning the tug toward the nose wheel, always be ready to brake and watch for the green nose wheel engaged light. When engaged the buzzer will sound.
- When engaged, put the tug in to Neutral, take your foot off the brake and make sure the handbrake is off. The brakes on the TLTV must be off when closing the gate. It must be allowed to be pulled on to the aircraft, otherwise the nose wheel will be pulled and may cause damage

4 Aircraft Pushback

- When the aircraft is ready to depart, the tug driver will wait until the headset operative gives him the 'brakes released' signal.
- When the signal is given, the TLTV cradle must be put into the raised position using the joystick. Push the joystick to the closed position and wait until the green 'closed' light comes on, then engage the hand brake. The green light will confirm that the cradle is fully raised.
- At this point the red flashing bypass pin light will come on. Check that the pin is still in place. This will be confirmed by pressing the yellow button.
- Select the appropriate gear for the size of the aircraft and commence the pushback in a smooth controlled manner.
- If the rate of turn becomes too acute, the '80%' warning light is activated. When this occurs adjust the angle to take pressure off the nose wheel. Should the '100 %' warning activate, the push must be stopped and the TLTV repositioned and reconnected.
- On completion of the pushback the aircraft and TLTV must be aligned.
- The joystick should be moved into the lowered position. When the cradle is fully lowered the red 'lowered' light will illuminate.
- Having received confirmation that the cradle has lowered, the driver must pass the 'set brakes' signal to the headset man. When 'set brakes' is confirmed, the TLTV driver must move the joystick into the 'opened' position. When the red 'opened' light signal illuminates, Reverse gear can be selected and the TLTV can move away from the aircraft.
- On completion of the pushback the cradle must be closed and raised, and the cab rotated away from the drive wheels.
- When the headset operative has released the aircraft, and after showing the flight deck that the steering bypass pin has been removed, the TLTV may then be driven to the appropriate parking position. The handbrake must be applied and Neutral gear selected. The joystick must be moved into the 'lowered' position. This will be confirmed by the green 'lowered' light signal.

[Insert procedures for pushback and tow, including ensuring aircraft nav lights on at night or in low vis (and anti-coll if procedures etc require)]

5 Key Safety Points

- Only trained and authorised personnel or trainees under instruction are allowed to operate a Towbarless tug.
- Always perform a pre-trip inspection.
- Follow the published operating procedures and safe working practices at all times.
- Chocks must not be removed until the tug is connected and secured
- Never 'lift' the aircraft until instructed to do so by the crew chief.
- Never use a TLTV on an unauthorised aircraft type or if the aircraft operator has not approved the use of a TLTV on its aircraft.

Appendix E Model Safety Instruction - Aircraft Power-back Procedures

Important note: This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

MANPOOL AIRPORT

SAFETY INSTRUCTION NO X/200-

POWER-BACK PROCEDURES

1 Introduction

- 1.1 Manpool Airport must be satisfied that any power-back manoeuvres carried out at the airport are conducted safely, in accordance with an agreed procedure and with minimum disturbance to other apron users. Prior agreement, in writing, to perform power-backs must be obtained by an airline and will be subject to the provisions of this Safety Instruction being met. However, once a procedure has been approved, 'blanket' agreement may be given. This instruction details the requirements for the regular/routine employment of power-back procedures, by airlines, for aircraft departure.
- 1.2 The approval procedure for ad-hoc power-back, by single aircraft and to overcome special conditions, is detailed in the current Manpool Safety Instruction entitled AIRCRAFT BLAST AND FUMES.

2 Power-Back Requirements

- 2.1 Before approval of power-back manoeuvres can be considered, the following conditions must be satisfied:
 - a) Authorization and procedures for power-back must be included in the aircraft manufacturer's manual.
 - b) The power-back procedure must be incorporated in the airline's Operations Manual.
 - c) Any pilot intending to use power-back must be trained and experienced in the procedure.
 - d) The aircraft anti-collision beacon(s) must be switched on before the engines are started.
 - e) The power-back manoeuvre must be guided by a trained power-back marshaller, provided by the airline, using standard ICAO power-back marshalling signals.

- f) At the start of the manoeuvre a minimum of forward movement is permitted, sufficient only to ease any 'flat' out of the aircraft's tyres.
- g) The minimum engine power settings should be used, sufficient to get/keep the aircraft moving.
- h) Wing walkers must be employed to safeguard the rearward movement of the aircraft, ensure safe wingtip clearances and to avoid collisions with other aircraft, vehicles or personnel.
- i) The power-back manoeuvre should end with the aircraft aligned with the centreline of the taxiway.
- j) At no time during the power-back manoeuvre should the aircraft's wings sweep adjacent parking stands, whether or not they are occupied.

3 Power-Back Demonstration

Before agreement for power-back can be given, Manpool Airfield Operations Manager will require to observe a trial/demonstration of the full power-back manoeuvre using the aircraft type, aircraft weight, engine power settings and procedure intended for operational use. An assessment will be made on the effects of engine noise, vibration, blast overpressures and fumes, observed during the trial, to determine the suitability of the procedure.

4 Applications

Airlines who wish to introduce regular power-back departures for their aircraft should, in the first instance, apply in writing to the Manpool Airfield Operations Manager giving details of the aircraft type(s) concerned.

5 General

Any questions relating to this Safety Instruction should be addressed Manpool Airfield Operations Manager, telephone 1234-5678

Appendix F Model Safety Instruction - Aircraft Blast and Fumes

Important note: This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

MANPOOL AIRPORT

SAFETY INSTRUCTION X/200-

AIRCRAFT BLAST AND FUMES – ARRIVAL, ENGINE START AND PUSH-BACK

1 Introduction

- 1.1 This instruction covers the engine handling requirements and procedures to be used at Manpool during apron operations and is issued to remind all flight and ground crews of the hazards that may result from engine blast and fumes. These procedures are intended to promote safe aircraft movement without the risk of damage to buildings, aircraft or equipment and injury to staff/passengers in the apron areas.
- 1.2 There is a hazard from the blast created by all engines, particularly jet engines. The risk is greatest in areas which cannot be protected by blast screening and from aircraft with high tail-mounted engines. Staff working behind blast screens, or in open buildings close to a stand, and passengers on the opposite side of an apron cul-de-sac can also experience unpleasant engine fumes.

2 Arrival Procedures

- 2.1 There is a particular risk of blast damage or injury when an arriving aircraft is turning on to the stand centreline. The risk is further increased if for any reason the aircraft stops, then applies the additional thrust required to 'break away' and continue the manoeuvre.
- 2.2 Commanders of aircraft are to keep all engines running (notwithstanding any fuel economy measures) in order to limit the need for high thrust levels. Ideally the aircraft should be kept moving to ensure that break away power is not required. Exceptions, specifying aircraft type and stand concerned are notified to Airlines concerned.
- 2.3 Thrust levers must not be exercised for test reasons when the aircraft is on stand and engines should be shut down as soon as operationally practicable once the aircraft is parked.
- 2.4 Aircraft anti-collision beacon(s) must remain on until the engines have run down.

3 Departure Procedure – Engine Start

- 3.1 Flight deck crew and ground crew should be in verbal contact (if verbal contact is not possible, standard hand signals must be used).
- 3.2 Before engines are started the aircraft anti-collision beacon(s) must be switched on.
- 3.3 Ground crews must ensure that the area immediately behind an aircraft, plus the zone immediately in front of the engine intakes, is clear of staff, passengers, vehicles and equipment before giving clearance for engine start. Additionally, before giving start clearance to the pilots of any wide body aircraft, ground crews must ensure that:
 - a) No other aircraft is on or approaching the taxiway centreline, or about to pushback on to the centreline, in the area behind the aircraft awaiting start.
 - b) Passengers are not boarding or disembarking via steps from an aircraft in any area behind the aircraft that may be affected by jet blast.
- 3.4 Ground crews must notify pilots of any potential hazard that could be created by the starting of engines.
- 3.5 On wide-body aircraft, a single engine start-up only is permitted on stands in cul-de-sacs. The remaining engines must not be started until the aircraft is pushed back and aligned with the taxiway/taxilane centreline.
- 3.6 The tail mounted engine of MD11, DC10 and L1011 aircraft is not to be started in a cul-de-sac until the aircraft is aligned with the taxiway/taxilane centreline and pulled forward until the rear of the aircraft is a minimum of 100 metres from the blast screen (a painted stop bar is provided in all cul-de-sacs to indicate the nose wheel position).

4 Push-Back Procedure – Blast Precautions

- 4.1 Ground crews must ensure that the area into which an aircraft is to be pushed is clear of staff, passengers, vehicles and equipment, before the push-back operation is started.
- 4.2 During all push-back manoeuvres aircraft engine settings should not exceed idle power.
- 4.3 Aircraft on the inner stands of a cul-de-sac must, after push-back, be pulled forward until the rear of the aircraft is a minimum of 100 metres from the blast screen before the aircraft tug and towbar are disconnected (a painted stop bar is provided in cul-de-sacs to indicate the nose wheel position).
- 4.4 All push-back manoeuvres are to end with the aircraft aligned with the taxiway/taxilane centreline.
- 4.5 If a cross bleed start is necessary, ensure that the aircraft is pulled or taxied forward to the head of the cul-de-sac (or at least 200 metres from the blast screen) before the cross bleed engine start is commenced.

NOTE: This may require the pilot to obtain ATC clearance to move from the normal push-back position.

5 Taxying

Pilots must use the minimum power necessary to get/keep the aircraft moving, particularly when in the cul-de-sac aprons.

6 Safety in the Vicinity of Works Areas

Development and maintenance work in the Movement Area occasionally involves sections of the Area being totally withdrawn from use. At other times aircraft access has to be restricted due to the work in progress; notification is always given by the issue of a Safety Instruction. These sections are always coned, barriered or fenced off and are marked at night with red obstruction lights along their perimeters. Pilots are to use minimum power when in the vicinity of these working areas and should never direct jet-blast towards the areas.

7 Aircraft Self Manoeuvre

7.1 The aircraft stands at Manpool are designed for the nose-in parking of aircraft and for subsequent push-back by aircraft tug. The following exceptions may apply:

7.1.1 Permanent permission for propeller driven commuter type aircraft, to reverse off stands under their own power, can be given for operators/airlines whose procedures are approved. Such approval is under the provisions of the current Manpool Safety Instruction entitled – Aircraft Power-Back Procedures which should be consulted for details of the method of application. Only in exceptional circumstances will any other aircraft be permitted to reverse off a stand under its own power. Specific clearance must be obtained for each movement and pilots must comply with the clearance instructions.

Applications should be made to the Airfield Safety Unit, telephone 1234-5678.

7.1.2 As a matter of routine Manpool may require some small and medium size aircraft to turn on selected stands where circumstances and stand dimensions permit. In this event aircraft will be marshalled into position.

7.1.3 Conversely, pilots who wish their aircraft to be turned on stand, for subsequent self manoeuvring on departure, must obtain specific clearance for each movement and must comply with the clearance instructions. A marshalling service will be provided.

Applications should be made to the Airfield Safety Unit, telephone 1234-5678.

8 General

8.1 It is essential that the contents of this Instruction are given the widest circulation to pilots, engineering and other ground staffs concerned with the movement of aircraft.

8.2 Any questions relating to this Instruction should be addressed to the Manpool Airfield Operations Department, telephone 1234-5678.

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Appendix G Model Safety Instruction - Aircraft Engine Ground Runs and the use of Auxiliary Power Units

Important note: This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

MANPOOL AIRPORT

SAFETY INSTRUCTION NO X/200-

AIRCRAFT ENGINE GROUND RUNS AND USE OF AUXILIARY POWER UNITS

1 Introduction

Manpool Airport is responsible for the safe ground running of aircraft engines on the aerodrome and the control of blast, fumes and ground noise. This instruction sets out the rules and procedures for aircraft engine ground runs and the use of aircraft auxiliary power units (APUs) and ground power units (GPUs).

2 Definition

- 2.1 For the purpose of this Instruction, an engine ground run is defined as any engine start-up not associated with the planned aircraft departure.

3 Approval

- 3.1 Permission for an engine ground run must be obtained in advance from the Manpool Airfield Safety Unit, telephone 1234-5678.
- 3.2 The following details must be provided when seeking permission to carry out an engine run:
- Airline
 - Aircraft type and registration
 - Requested location for engine run
 - Planned start time
 - Expected duration
 - Number of engines to be run simultaneously
 - Level of engine power to be used
 - Type of maintenance/check

- Why the engine run is required

3.3 Any variation to the details given above must be the subject of a further permission.

4 Safety

4.1 All personnel concerned with engine ground running must be fully conversant with these rules and with the following requirements, which must be complied with at all times

4.2 Aircraft Parked on Stands

4.2.1 On stands in cul-de-sacs and other selected stands, engine ground runs will be limited to check-starts and idle power. For checks requiring the use of greater power settings it will be necessary to move the aircraft to a more suitable location, as directed by the Airfield Safety Unit.

4.2.2 The aircraft must be positioned correctly on the stand in such a way that engine running will not harm persons or cause damage to aircraft, buildings, installations, vehicles or equipment in the vicinity.

4.2.3 All apron equipment must be placed at a safe distance from the aircraft.

4.2.4 Where applicable, the rear of stand road must be closed, to safeguard vehicular traffic, before any approved engine run is permitted.

4.2.5 The aircraft anti-collision beacon(s) must be switched on before engines are started and must remain on for the duration of the ground run.

4.2.6 The engineer in charge of the ground run must ensure that the aircraft wheels are safely chocked and that the aircraft cannot move forward under any circumstances.

4.2.7 Ground running must not take place when passengers are being embarked/disembarked on any adjacent or opposite stands, except when such passengers are using an airbridge.

4.2.8 A trained member of airline or handling staff is to be positioned on the stand in verbal contact with the flight deck. He/she will communicate by R/T or interphone with the flight deck to ensure that the engine(s) are shut down if persons or vehicles move into the danger area in front of, behind or in the vicinity of a live engine. For this purpose and if the R/T or interphone link is unserviceable, hand signals by day and light signals by night may be used.

4.2.9 Any operator requiring advice on the safety aspects of paragraph 4.2 above should contact the Airfield Safety Unit, telephone 1234-5678.

4.3 Aircraft in Other Areas

4.3.1 If engine ground running is approved to be carried out in any other location, it is the responsibility of the engineer in charge to ensure that the area behind the aircraft, which could be subjected to blast, is clear of persons, vehicles and equipment and that the ground is firm and free from loose tarmac, stones and other materials. The area immediately in front of the engine intake(s) must also be clear. A look out must be provided as in paragraph 4.2.8 above.

4.3.2 Any operator requiring advice on the safety aspects of paragraph 4.3.1 above should contact the Airfield Safety Unit, telephone 1234-5678.

4.3.3 During all ground running of engines, other than in the Maintenance Area, a listening watch must be maintained on the ATC Ground Movement Control frequency to ensure the prompt initiation of emergency procedures if required.

5 Auxiliary Power Units

- 5.1 Aircraft APUs generate high levels of noise and significant fumes which can cause disturbance to those on nearby aprons, in buildings and in residential areas. The noise of an APU may mask the noise of an approaching vehicle, thus endangering staff.
- 5.2 Airlines and handlers are to ensure that APUs are used for the absolute minimum time necessary to meet operational needs.
- 5.3 APUs are not to be used as a substitute for either FEGP or GPUs.

6 Ground Power Units

- 6.1 Constantly running GPUs can cause high noise levels on the apron, are an additional obstruction to free movement around a parked aircraft and, if poorly maintained, may deposit oil spillage on the stand.
- 6.2 In apron areas where FEGP is provided and serviceable, GPUs are not to be used. Where there is no alternative to the use of GPUs they should be promptly shut down when power is no longer required.
- 6.3 When purchasing new GPUs, airlines and handling agents are urged to make low working noise levels a prime requirement in the selection process.

7 General

Any questions relating to this Instruction should be addressed to the Airfield Operations Department, telephone 1234-5678.

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Appendix H Model Safety Instruction - Foreign Object Debris/Damage

Important note: This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

MANPOOL AIRPORT

SAFETY INSTRUCTION NO X/200-

FOREIGN OBJECTS ON THE APRON AND THE REMOVAL OF HAZARDS

1 Introduction

- 1.1 Manpool Airport is responsible for taking adequate measures to ensure the safety of aircraft, vehicles and persons using the aprons. A fundamental element of the safety effort is to maintain the aprons in a clean condition and free from obstructions.
- 1.2 Foreign objects are regularly deposited on the Movement Area and it is essential that all airport personnel understand the danger to flight safety that such objects represent. Foreign objects may be ingested into aircraft engines causing damage leading to engine failure, which is especially critical if it occurs in flight, particularly if it occurs during the take-off phase. At best, such damage leads directly to premature engine removal and replacement. In addition, damage caused by foreign objects can occur to tyres and undercarriages, control systems and other parts of the airframe. All such damage could lead to in-flight failures and inevitably requires expensive repairs to be made. All foreign objects are a threat to aircraft safety.
- 1.3 Every individual has a responsibility to ensure that the risk of damage to aircraft from FOD is minimised. Any item of FOD found by a staff member in the course of their work should be removed and placed in the bin provided. An item of FOD seen in an area that a staff member is not authorised to enter should be brought to the attention of a supervisor. All operators should introduce staff procedures that reflect these responsibilities.
- 1.4 Foreign Object Debris (FOD) is a general term which applies to all loose objects which are a danger to the safety and integrity of an aircraft and which, therefore, must not be left in any area so as to constitute a hazard. The list of FOD items most frequently found on the apron is long and principally includes:-
- Plastic and paper bags/sheets, rags, empty oil and hydraulic fluid cans, empty soft drink cans, nuts and bolts, tools and equipment, luggage wheels and tags, metal cutlery, burst ballast bags, broken wooden items and miscellaneous rubbish.
- The presence of FOD is due mainly to the carelessness of staff and their lack of understanding of the consequences.

2 General Rules

2.1 Responsibilities

No FOD is to be deposited or left on any part of the Movement Area. It is the direct responsibility of airlines, handling agents, fuelling companies, cleaning companies, catering companies, engineering operatives/contractors and all other users of the aerodrome to ensure that it is maintained in as safe and clean a condition as possible and that all FOD is removed as soon as it is found. Great care must be exercised by all those working on the apron, particularly those working on aircraft, to ensure that no FOD is left behind from their operation.

2.2 Aprons Areas

After completing the ground handling, refuelling and servicing of an aircraft the stand areas must be left clean and tidy. FOD must be removed or placed in the containers provided. All apron equipment which could be blown away must be secured to some fixed object, or stored in a safe place not exposed to wind or aircraft engine blast effect.

2.3 Vehicles on the Movement Area

Before proceeding from one area of the airport to another via a route that involves crossing the Movement Area, all vehicles must be carefully inspected to ensure that anything that is carried in or on the vehicle is secured, that all doors and tail or side boards are closed and securely locked shut and that no parts of the vehicle or trailer are loose and likely to become detached.

2.4 Spillages

Manpool maintains cleaning equipment and crews at readiness for the immediate clean up of spillages. All spillages of materials must be reported immediately to the Airfield Safety Unit, telephone 1234-5678, for their action. This is especially important when the spillage is fuel or any other inflammable material – the current Safety Instruction entitled Fuelling of Aircraft refers. The current Safety Instruction entitled HAZCHEM gives instructions concerning the handling of damaged consignments containing hazardous materials.

2.5 Removal of Apron Hazards

2.5.1 The parking or abandonment of unserviceable ground equipment or vehicles, contractor's materials and miscellaneous objects on the aprons constitutes a safety hazard and contributes to apron congestion.

2.5.2 If unserviceable equipment, vehicles, contractors' materials or other miscellaneous objects (hereinafter referred to as 'the Object') are found to be creating an obstruction or a hazard they will be marked with a notice by the Manpool Airfield Safety staff. The wording on the notice will state that Manpool requires the offending Object to be removed from the airside area within 72 hours of the date and time of fixing the notice and that any questions arising from the notice are to be directed to the Airside Safety Unit.

2.5.3 If an offending Object is not removed within the notified period it will be removed to a Manpool compound and retained for a period of (insert appropriate figure) weeks. If the owner of the Object does not come forward or cannot be traced it will be disposed of, without prejudice, after the expiry of the holding period.

2.5.4 If an offending Object is considered to be an immediate hazard it will be removed immediately and without prior notice.

- 2.5.5 Manpool accepts no responsibility for any damage to the Object before, during or after removal to the compound.

3 General

Any questions relating to this safety instruction should be addressed to the Manpool Airfield Operations Department, telephone 1234-5678.

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Appendix I **Model Safety Instruction - Passenger Airbridges**

Important note: This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

MANPOOL AIRPORT

SAFETY INSTRUCTION No X/200-

PASSENGER AIRBRIDGES

1 Introduction

All pier-served stands at Manpool are equipped with passenger airbridges. There are two specific types of bridge in use, referred to as either rail-drive or apron-drive airbridges.

2 Passenger Airbridge Service

- 2.1 Use of the airbridge by an aircraft operator, owner or handling agent, shall constitute prior acceptance of the conditions set out hereunder.
- 2.2 Manpool Airport will carry out its schedule of engineering preventative maintenance during the quiet hours.
- 2.3 Manpool Airport will carry out an operational daily inspection of all airbridges during the quiet hours.
- 2.4 Manpool Airport will maintain and clean the airbridges and is responsible for the maintenance of airbridge operating standards.
- 2.5 Except as otherwise expressly provided in this instruction the conditions of use of Manpool Airport, as promulgated, shall apply to the use and operation of airbridges.

3 Airbridge Operator Licensing

- 3.1 Airbridges may be operated only by persons holding an Airbridge Operator's Licence issued by Manpool Airport, endorsed for the appropriate type of airbridge. Licences are restricted to those persons who operate airbridges regularly as an essential part of their job function.

Licences will not normally be issued to employees of airlines who have nominated a handling agent to perform the dispatching function.

NOTE: Because of the variety of airbridges in use at Manpool Airport, licences will be endorsed with the specific stand numbers on which the licence holder is permitted to operate the airbridge.

- 3.2 The issue of a licence is subject to the satisfactory completion of a course of training, followed by an airbridge driving test, where candidates must be able to demonstrate a high standard of familiarity and safety proficiency in the operation of the airbridge.
- 3.3 Tests are carried out by a member of the Manpool Airport Airfield Safety Department. Applications for tests should be made by airline airbridge training officers approved by Manpool Airport, direct to the Airfield Safety Department, telephone 1234-5678 during normal office hours.
- 3.4 Licences must be re-validated every two years by the nominated airbridge training officer. Manpool Airport may also require a licence holder to be submitted for a revalidation check on request. Operators must comply with any other requirements or conditions which may be determined from time to time by Manpool Airport.
- 3.5 The airbridge licence remains the property of Manpool Airport. In circumstances where, in the opinion of Manpool Airport, the operator has acted negligently or recklessly in the operation of an airbridge, Manpool Airport reserves the right to suspend unconditionally and immediately the licence for a specified period pending retraining or to withdraw the licence altogether.

4 Airbridge Operator's Responsibilities

- 4.1 It is essential that a careful check is made to ensure that no vehicles or equipment are parked beneath, or in the manoeuvring area of, the airbridge. Additionally the bridge must be free of debris and correctly parked before an aircraft enters the stand. This is particularly necessary on stands equipped with apron-drive bridges, as safe clearance from aircraft engines and wings may not otherwise be maintained. If bridges are not fully retracted for any reason, aircraft must be Stopped Short (see paragraph 8 below).
 - 4.1.1 Apron-drive bridges are fitted with an audible warning and flashing lights which operate whenever the speed control is operated and the bridge is moving.
 - 4.1.2 In the interests of safety, whenever an apron-drive bridge is moved, a 'look out' should be positioned on the apron to assist the bridge operator. This precaution is particularly necessary on bridges which are not fitted with CCTV, or where the CCTV is unserviceable.
 - 4.1.3 All bridges are fitted with an interlocked safety barrier and will not move unless the barrier is correctly positioned across the mouth of the bridge.
 - 4.1.4 All airbridges are fitted with a safety canopy and an autoleveller device. The canopy provides fire and weather protection for bridge users and the autoleveller compensates for trim changes experienced during aircraft refuelling and the loading and unloading of passengers.
 - 4.1.5 The airbridge operator must ensure that the autoleveller is engaged before loading or unloading the aircraft. Whenever the airbridge is docked to the aircraft the autoleveller must remain engaged.
- 4.2 In the event of the loading or unloading of very heavy cargo, the airbridge must be withdrawn from the aircraft as the rapid trim changes may be beyond the capability of the autoleveller system.

- 4.3 Airbridges should not be left unattended when passengers are being embarked or disembarked. Should the bridge go out of limits while loading or unloading is taking place, the bridge is to be removed and repositioned.
- 4.4 When bridges are not being used for passenger loading or unloading they should be retracted into their parking box and closed down. Airlines and handlers are advised that whenever a bridge is docked to an aircraft a qualified airbridge operator should be in attendance, unless an approved and serviceable safety shoe device is employed.
- 4.5 Aircraft operators are reminded that they are responsible for the security of their aircraft and docked airbridges make aircraft vulnerable. To prevent unauthorised access via airbridges, airlines should either deploy personnel to control access to their aircraft or remove the airbridge from it.
- 4.6 Whenever an apron-drive bridge has been removed from an aircraft it must be parked in its parking box and closed down. Whenever a rail-drive airbridge has been similarly removed it should be fully retracted and closed down.
- 4.7 The aircraft passenger door is to remain closed until the airbridge has been correctly docked and must be closed before the bridges is retracted.
- NOTE:** This does not apply to certain aircraft, with integral passenger steps, when alternative procedures have been specifically authorised by Manpool Airport Safety Department.
- 4.8 Airbridges must not be moved when passengers are on the airbridge.

5 Operation of Airbridges

Rail-drive airbridges and apron-drive airbridges must be operated in accordance with the instructions contained in the Manpool Airport Standard Operating Procedures (SOPs) booklet which is issued to all licensed operators.

6 Parking Boxes

- 6.1 Parking boxes are painted on the apron to indicate to all concerned with aircraft arrivals and departures the correct parking positions for the apron-drive airbridges.
- 6.2 Both wheels of the bridge must be within the box whenever the bridge is in the parked position.

7 Visual Docking Guidance System (VDGS)

All stands equipped with airbridges are provided with VDGS. Details of these installations and the method of use are described in the Manpool Safety Instruction dealing with VDGS.

8 Stop Short Procedures

- 8.1 If an airbridge is unserviceable or cannot be fully retracted the stand must be withdrawn from use or, if practicable, allocated to aircraft types that can safely be stopped short of the airbridge for passenger steps to be used. The need to Stop Short will be indicated to flight crews by one of the following methods:
- a) An illuminated sign which flashes in red 'STOP SHORT'.

- b) A STOP SHORT sign displayed on a rail-drive airbridge.
 - c) By marshalling signals.
- 8.2 Full stop short procedures are described in the Manpool Safety Instruction dealing with VDGS.

9 Fault Reporting

- 9.1 In the event of any malfunction/failure occurring to an airbridge, or of a bridge obstructing a stand, Manpool Operations Centre (MOC) must be advised immediately, telephone 1234-5678 giving the stand number and brief details of the fault. MOC will alert Manpool Engineering Department (who should not be contacted directly) to attend and rectify the fault. MOC will also alert Airfield Operations who will decide any limitations necessary and provide a marshalling service.
- 9.2 If an airbridge fails when in contact with an aircraft MOC should be notified as in 9.1 above. The airbridge may be wound away from the aircraft using the emergency procedure detailed in The Airbridge SOPs Handbook, to permit a normal pushback to be carried out. Instructions for emergency wind back are also prominently displayed in airbridge cabs.

The STOP SHORT warnings must be displayed to prevent the next arriving aircraft colliding with the extended airbridge.

10 Emergency Stop and Emergency Back-off Action

(Instructions on Emergency Stop and emergency back-off procedure for your types of airbridge should be inserted here.)

11 Accident Reporting Procedure

It is the responsibility of the airbridge operator to report all accidents involving serious injury to personnel, damage to aircraft or the airbridge, in accordance with the procedure detailed in the current Airside Accident Safety Instruction.

12 General

Any questions concerning this instruction should be addressed to Manpool Airfield Operations Department, telephone 1234-5678.

Appendix J Model Safety Instruction - Strong Winds

Important note: This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

MANPOOL AIRPORT SAFETY INSTRUCTION NO X/200- STRONG WINDS

1 Introduction

- 1.1 Strong wind conditions can give rise to hazards from wind-blown items and in very strong winds there is a possibility of structural damage to aircraft. The principal threats are of engine ingestion or airframe damage to aircraft on stands, taxiways and runways; the severity of the threat of obstruction of a runway to an aircraft taking off or landing cannot be stated too strongly. There is also a danger of personal injury for apron staff and damage to vehicles and equipment.
- 1.2 This Instruction details the requirements, and precautions to be taken, when strong winds are expected/experienced at Manpool.

2 Strong Wind Warnings

When meteorological warnings of strong winds are received by Manpool Airport, the details of the warning will immediately be broadcast by a message on the staff information system.

3 Responsibilities In Strong Winds

- 3.1 When a strong wind warning has been issued, or when strong wind conditions are experienced, the following actions must be taken by airlines, handling agents, operators and staff:
 - a) Extra vigilance must be exercised to prevent accumulations of FOD and to ensure that all loose items are removed or safely stowed (plastic bags and sheeting are a particular threat to engine ingestion in all areas of the airfield.). Action must be taken to ensure that covers are securely fastened on all waste containers.
 - b) All ground equipment and vehicles on the aprons, not in immediate use, must be parked in the areas provided with parking brakes applied.
 - c) Equipment in use on stands must be secured with parking brakes set. Equipment without parking brakes must be chocked or removed.

- d) Large items of equipment that are vulnerable to winds, such as empty freight containers, must be secured to a fixed object or removed to a protected area.
- e) All loose items in contractor's works areas must be secured or removed.
- f) Staff observing any obstruction or equipment moving in the wind, irrespective of ownership, must take action to secure it.
- g) Handling staff should take special precautions when towing aircraft and should refer to the company's operations manual for specific guidance.
- h) Aircraft rubbish and equipment that is normally temporarily placed on the stand, such as bagged waste, blankets or headsets, must be removed or securely stored immediately it is removed from the aircraft.

4 Airbridges

When wind speeds exceed 30 kts, airbridge cabs should be fully lowered with the shutters closed and where possible positioned to face out of wind, to avoid structural damage. Manpool Airport Engineering will initiate this airbridge safeguarding.

5 Positioning and Picketing of Aircraft

Airlines who wish to position their aircraft facing into wind should advise the Airfield Safety Unit and request allocation to a suitable stand or other airfield area. Owners of GA aircraft or their agents should contact the Airfield Safety Unit if they have any problems in picketing their aircraft.

6 Towing of Aircraft

Airline operators are responsible for issuing instructions on the limiting wind speed for the towing of their aircraft.

7 Cancellation of Strong Wind Warnings

When strong winds have subsided, or are no longer expected, a cancellation message will be broadcast on the staff information system.

8 General

Any questions on the Safety Instruction should be addressed to Manpool Airfield Operations Manager, telephone 1234-5678.

Appendix K Model Safety Instruction - Apron Operations in Low Visibility Conditions

Important note: This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

MANPOOL AIRPORT

SAFETY INSTRUCTION NO X/200-

APRON OPERATIONS IN LOW VISIBILITY

1 Introduction

Low visibility procedures (LVPs) are introduced at Manpool Airport when the Runway Visual Range (RVR) is reduced to 800 metres or is forecast to fall below this value, or when the cloud ceiling is reduced to 200 feet or below or is forecast to fall to 200 feet or below. The decision to declare LVPs is taken and initially notified by ATC. LVPs are for the protection of aircraft operating down to the very lowest visibilities and are designed to protect runways, precision approach aids and aircraft movements by limiting vehicular movements to the minimum necessary and stopping all engineering works on the Manoeuvring Area. Manpool Airport is responsible for safeguarding the Manoeuvring Area and the attention of all staff is directed to this instruction which gives the procedures for operating on the apron in low visibility.

2 Low Visibility Warnings

When LVPs are declared by ATC, Manpool Airport will immediately arrange for the broadcast of a warning to airlines and staff by a message on the staff information system.

3 Responsibilities During LVPs

When aware that LVPs are in force, staff should comply with the following:

- a) Only vehicles operated by Manpool Operations, ATC, the Airport Fire Service, aircraft tugs (see b)) and vehicles escorted by Manpool Operations are permitted on the Manoeuvring Area and these will be under the positive control of ATC.
- b) Tugs involved in a push-back operation are permitted to enter the taxiway, when coupled to an aircraft and must recover to the stand by the most direct means when the push-back is complete.
- c) Tugs with aircraft under tow may do so only under escort by a Manpool Operations vehicle.

- d) Warning signs denoting that LVPs are in force will be positioned at the approaches to the Manoeuvring Area and drivers must comply with the instructions on these signs.
- e) Drivers must be familiar with the limits of the aprons and must not enter a taxiway by crossing the double white painted lines that mark the boundary between the taxiways and the aprons.
- f) Safeguarding barriers will be placed on airside roads adjacent to a taxiway to warn drivers.

4 Taxiway Crossings

When RVR is reduced to 500 metres all controlled crossings of taxiways/taxilanes will be closed, the lights will be set to red and a warning sign, indicating the closure, will be displayed.

5 Low Visibilities on Aprons

When visibilities are reduced to values of 200 metres or less staff should observe the following precautions:

- a) Vehicles should be operated with dipped headlights, and where fitted, fog lights, illuminated and drivers should proceed with extreme caution.
- b) Vehicle obstruction lights should be switched on.
- c) Only essential journeys on the aprons should be undertaken.
- d) All staff should be alert to the sudden appearance of an aircraft entering a stand and be prepared to give way accordingly.

6 Cancellation of LVPs

When ATC notify that LVPs are cancelled, Manpool Airport will immediately arrange to advise staff by a message on the staff information system.

7 General

Any questions on this Safety Instruction should be addressed to Manpool Manager Airfield Operations, telephone 1234-5678.

Appendix L Model Safety Instruction - Winter Operations and Apron Hazards

Important note: This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

MANPOOL AIRPORT

SAFETY INSTRUCTION NO X/200-

WINTER OPERATIONS AND APRON HAZARDS

1 Introduction

- 1.1 The current Safety Instruction entitled MANPOOL AIRPORT SNOW CLEARANCE PLAN summarises snow clearance responsibilities and arrangements for the manoeuvring area. Those provisions are not repeated here.
- 1.2 This instruction sets out the precautions to be taken on the aprons in winter conditions, including the responsibilities of operators on the apron when freezing conditions are experienced or expected.

2 Notification

- 2.1 When meteorological warnings of frost or freezing conditions are received, or freezing conditions are observed on the apron, details will be transmitted to airlines, operators and staff, using the dedicated pages on the Manpool Airport staff information system.
- 2.2 Manpool will make every effort to disseminate information on the changing weather situation. It is the responsibility of airlines, handling agents and operators to warn passengers and staff of the likely presence of snow and/or ice in their operational areas and to take self-help measures whenever possible.
- 2.3 Any winter hazards not specifically mentioned in Manpool Airport staff information system messages should be notified to the Airfield Safety Unit for action.

3 Manpool Responsibilities

Manpool Airport will assess any freezing conditions and arrange for de-icing and gritting operations as deemed necessary. Airbridges, including outside steps, and fixed stand equipment will be de-iced by Manpool Airport staff, as will passenger routes and any associated steps/ramps. Any airline experiencing difficulty should contact the Airfield Safety Unit for advice and assistance.

4 Precautions in Freezing Conditions

Winter weather brings extra hazards which require awareness and more care on the part of personnel working on the aprons, if accidents are to be avoided. Simple precautions that can reduce accident risks should be taken as follows:

- a) Allow additional time for all ramp activities and take extra care when walking across apron surfaces which may be slippery.
- b) Take extra care when driving, especially when approaching an aircraft, or on the approaches to a road junction. When driving, bear in mind that vehicles require a greater distance in which to stop safely.
- c) Do not leave a vehicle unattended with the engine running simply to keep the cab warm or to charge the battery.
- d) Ensure attention is given to vehicle inspection prior to use. Check the operation of lights, battery condition and that sufficient anti-freeze is used in coolants and other fluids.
- e) Surfaces, particularly painted areas, treated with de-icing/anti-icing materials initially become more slippery. Staff and passengers should be warned to exercise extra care in these circumstances.
- f) High visibility clothing should be worn in accordance with current instructions.
- g) Make allowance for other staff whose movements may be restricted by difficult working conditions.
- h) Salt must never be used to de-ice apron surfaces due to the corrosive effect upon aircraft. Operators should contact the Airfield Safety Unit if they have any queries about the suitability of de-icing or anti-icing materials.

5 Avoidance of Water Spillage from Vehicles/Installations

- 5.1 In freezing conditions, or when freezing conditions are forecast, action must be taken to avoid the unnecessary formation of ice on apron and road surfaces. Operators of specialist vehicles involved in the carriage of water must take special precautions as follows:
 - a) Operators of potable water tankers and toilet servicing vehicles must be vigilant that there is no spillage or leakage leading to subsequent freezing. The flushing of potable water tanks is not permitted on apron surfaces.
 - b) Care must be taken in the use of potable water points to contain spillage and overflow to a minimum.
 - c) The washing of apron equipment, vehicles or aircraft is not permitted except in the specialist washdown areas provided.
 - d) Catering vehicle operators should ensure that any surplus ice from aircraft galleys is disposed of properly and not dumped on the apron.
 - e) If a spillage occurs the Airfield Safety Unit should be informed immediately.
- 5.2 All operators of aircraft parked on stand during freezing conditions should ensure that galley drains are not left dripping on to apron surfaces and that when aircraft tanks are drained the drained water is disposed of where it cannot present an ice hazard if it subsequently freezes.

6 General

Any questions relating to this Safety Instruction should be addressed to Manpool Airfield Operations Manager, telephone 1234-5678.

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Chapter 3 Airside Development and the Management of Airside Works

1 Introduction

- 1.1 The operation of aircraft is the 'core' business of any aerodrome. Therefore, it is imperative that the planning process leads to timely provision of the necessary facilities for aircraft to be operated safely and effectively. For the purposes of this document, the planning process is defined as the management of change and development, with no degradation in the safety environment for the operation of new and existing facilities. The purely technical and financial elements of planning issues are not covered here and this text is not intended to replace or supplement the detailed guidance which is available through publications such as the ICAO Aerodrome Design Manual for the design and provision of facilities. It seeks simply to capture those main themes which can be considered to be common principles affecting any airside planning process. In some situations plans may be 'Commercial in Confidence'. Nevertheless, the desire for confidentiality should not obscure the safety advantage to be gained from a full and early exchange of information with the relevant organisations in the formative stage of any project. Such early exchange should remain the objective.
- 1.2 It is fundamental that airport managers should not plan in isolation but must draw in, at all stages of the planning process, the ideas, understanding and experience of the range of operators at the airport. For planning matters it is essential to consider the following:
- a) Good communications with all operators and service providers at the airport.
 - b) Broad and effective regular consultation with operators and service providers as a recognised element of planning.
 - c) Shared risk assessments as part of planning for all categories of projects and works.
 - d) The consistent application of best practice across the aerodrome.
 - e) Good communication with the relevant CAA Departments.
 - f) Good communication with local planning organisations.
 - g) Evaluation of human factor risks.
- 1.3 Good planning is not simply concerned with new development projects but should also include the management of such airside safety aspects as capacity, congestion, commercial access and change of use, in order to maintain a safe operating and working environment. At space-constrained aerodromes it is considered essential to develop, in co-operation with aircraft operators, joint policies to rationalise and limit the overall amount of equipment and traffic in use airside and particularly on the aprons.
- 1.4 It is important that planners evaluate what the 'Best Practice' option would be and justify, in safety terms, any anticipated shortfall.
- 1.5 To be successful there must be a full partnership in planning between the aerodrome management and the aerodrome community.

- 1.6 Airports need effective forums for communication with operators. These may consist of many different bodies at a large aerodrome or a single multi-disciplined committee at smaller aerodromes. They come under a variety of suitable titles but, for the purposes of this document, just two example committees are identified as follows:
- a) Airport Operators Committee – to represent operators' interests in discussion of all airport activities.
 - b) Airside Safety Committee – a joint forum to consider all safety aspects of aerodrome operations.
- 1.7 This Chapter seeks to establish and develop those themes and principles which apply equally to all categories of aerodrome.
- 1.8 The main elements for promoting effective safety management in aerodrome planning are shown in the following block-schematic diagrams.

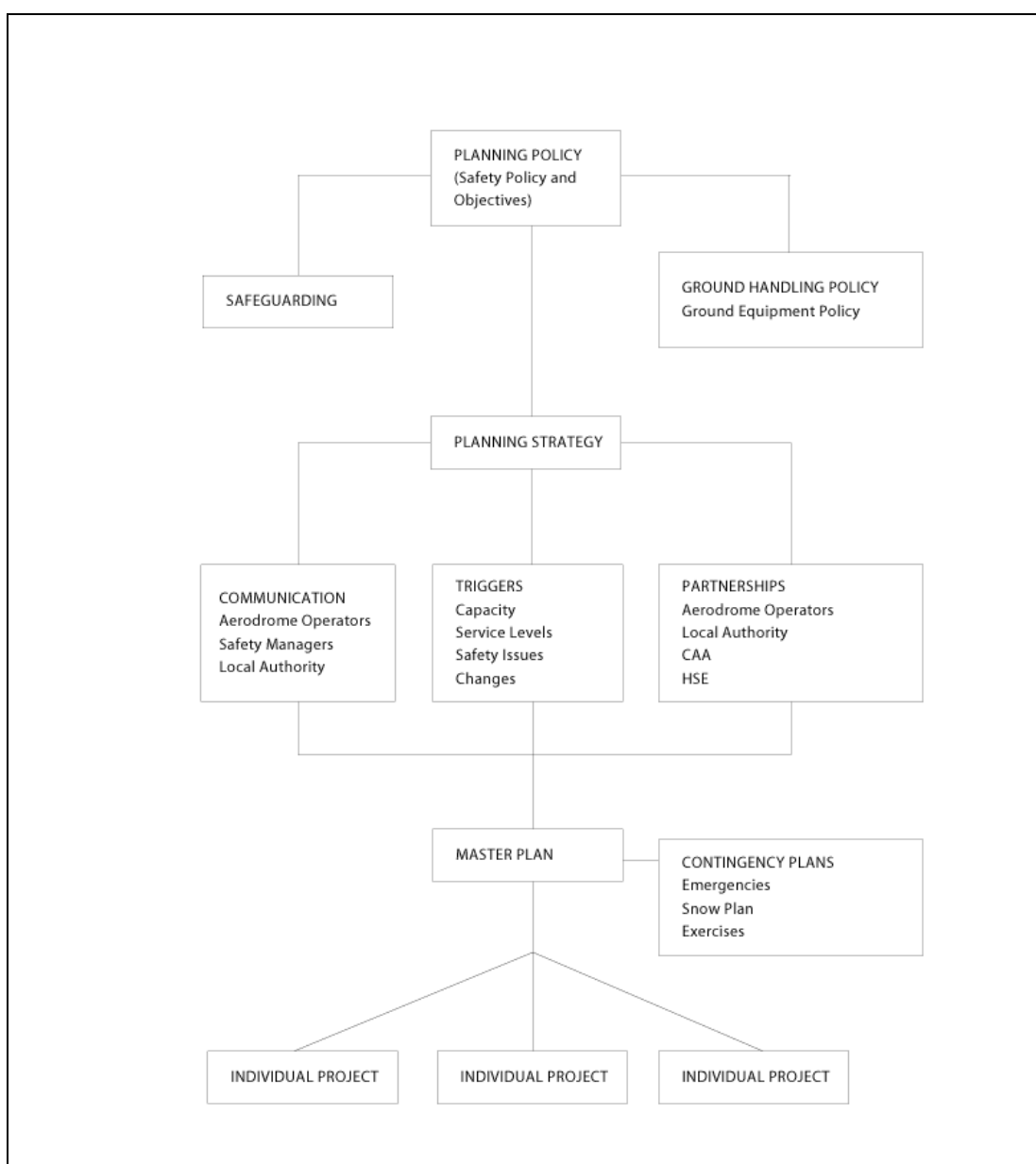


Figure 1 Developing the Master Plan

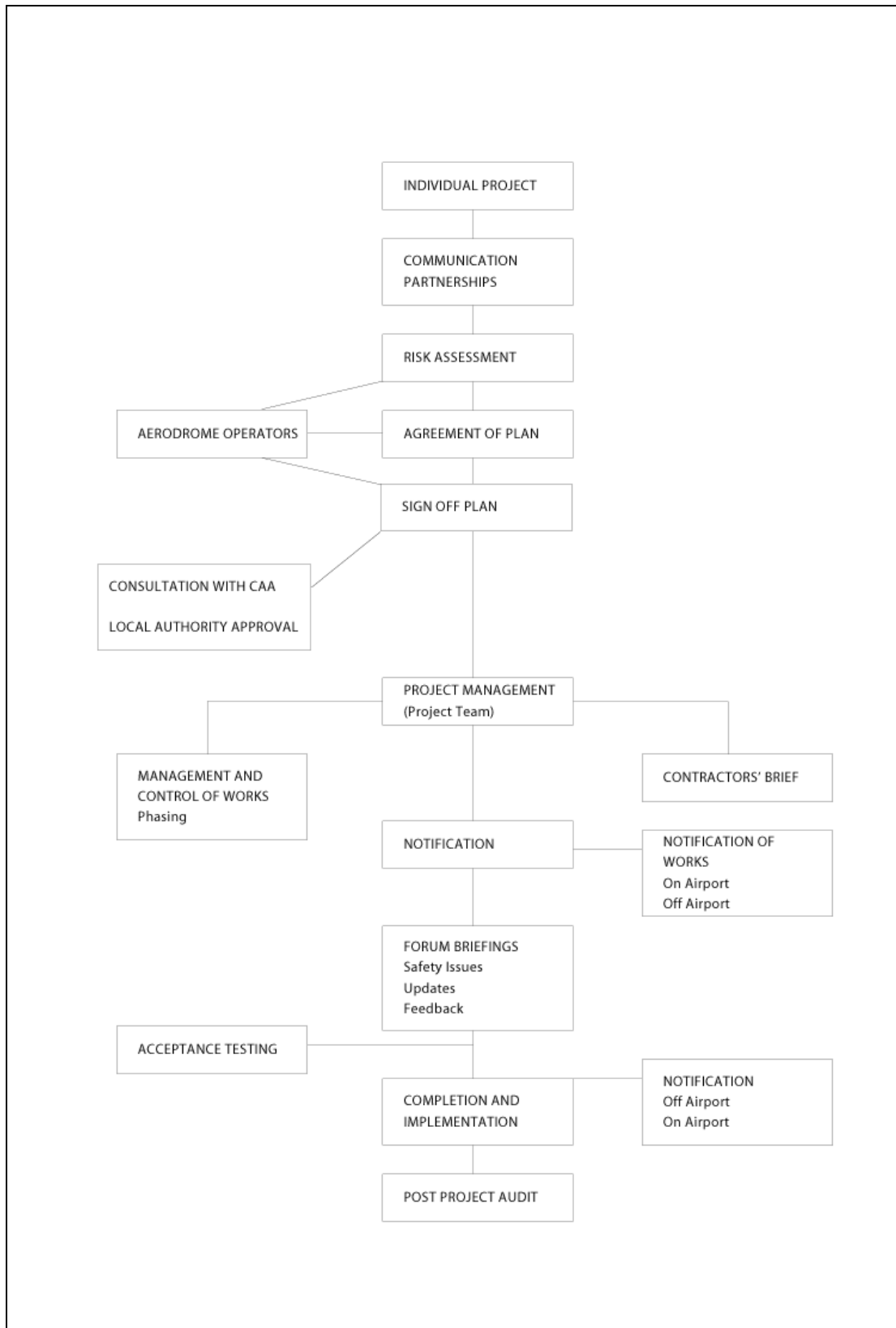


Figure 2 Planning the Project

2 The Planning Process

2.1 Effective planning is the basis for the safety and success of all airside operations and it is essential that Aerodrome Licensees should establish a comprehensive planning policy for their aerodrome. Planning policy must be in harmony with the Safety Management System and set out the organisation, process and broad standards to be employed. The policy should be written down for the guidance and compliance of all agencies involved in the planning process and should embody the following components:

- a) The establishment of effective communication with the aerodrome community to ensure their close involvement in planning matters;
- b) Agree and set standards for service levels and capacity and identify the 'triggers' for change that will initiate planning action, including the principle that demand and capacity should move forward in unison;
- c) The timely identification of needs on the basis of 'what is to be planned' and 'why is it to be planned';
- d) Consideration of the ways that the needs can be met;
- e) In accordance with the Safety Management System, incorporate safety considerations in all planning activity from the beginning, recognising that capacity demands should not drive safety issues;
- f) Incorporate risk assessment as a routine element of the process. Risk assessment need not necessarily be a complex or costly process. Many risk assessments will consist only of a series of simple questions and answers in which further action aimed at risk minimisation is identified;
- g) Select and obtain agreement on the best solution to meet the requirements of the plan or the project.
- h) Maintain flexibility and retain the ability to embody change if or when unforeseen factors arise.
- i) All parties 'sign-off' the plan at the end of the planning stage.
- j) Together with the aerodrome community, monitor the provision of the service or facility to completion.
- k) Review and audit new provisions after commissioning.

2.2 The essential principles in any Safety Management System are as follows:

- a) The evaluation of safety impact must be conducted systematically.
- b) The safety implications of change must be evaluated.
- c) Any reduction in safety must be justified.
- d) Any reduction in safety or hazard that cannot be fully or suitably mitigated must be accepted at the appropriate level of the organisation.

The above applies to projects and to routine developmental change.

3 Planning Strategy

3.1 Joint Planning Approach

3.1.1 In many cases the majority of technical and administrative planning work may be carried out by the airport specialist department; however, airport management should not plan in isolation. It is essential to establish a team approach to aerodrome planning with the full involvement of the aerodrome community and the incorporation of their experience, expertise and ideas. In some cases detailed planning work could be delegated to aerodrome operators or to independent consultants. The joint planning approach should embody the following:

- a) Recognition of the nature and needs of the industry in general and the aerodrome in particular. General trends and regulatory changes should be dealt with within an agreed timescale.
- b) Recognition of the need for continuous monitoring and analysis of aerodrome operations and co-ordinated development to meet any agreed requirements.
- c) Built-in systematic safety considerations of all planning initiatives as part of the Safety Management System.
- d) Effective multi-way communications to promote a 'no surprises' planning environment. Operators should keep the Aerodrome Licensee informed of impending company policy changes or the introduction of new aircraft, services or equipment to permit early consideration of the implications and needs.
- e) Allowance of sufficient time for communication, including any operators' planning and policy functions that are off-airport and may require longer communication lead times.
- f) Links with the local authorities to ensure receipt of information on development activity in the local area.

3.2 Planning Information

Effective planning relies on the analysis of accurate statistics and information on performance in order to determine trends and to forecast future demands and requirements. A joint system should be in place to collect, record and analyse the relevant data and present them in suitable formats for planning, safety management and forecasting purposes.

3.3 Planning Triggers

Agreement should be reached with all the aerodrome operators to identify and specify the range of performance indicators that will be used to trigger the necessary planning action to resolve any shortfall in facilities. Performance indicators should be decided for all fields of operation in terms of capacities, levels of service, safety of operations and acceptable levels of performance. There is always a danger that a particular demand may dictate change and development without due consideration of all the attendant safety factors. Any tendency for incremental development which gradually erodes safety margins must be avoided.

4 Partnerships in Planning

4.1 Local Partnerships

- 4.1.1 It is paramount to the success of aerodrome planning to establish the philosophy and practice of involving and consulting with the aerodrome community at all stages. Without proper and regular consultation with its operators, an aerodrome authority's plans may be flawed. Not only do the operators know best how they work and what is needed for a safe and efficient operation, but it is likely that there is a wealth of expertise available within their own workforce. Partnership in planning should exploit all the knowledge, experience and ideas from all interested parties. A further benefit is the co-operation and good relationships that can be forged by communication and consultation.
- 4.1.2 The aerodrome authority will normally lead and direct the consultation process, which should include aircraft operators, ground handlers and those contractors providing principal aircraft services such as catering, aircraft cleaning and fuelling. Where appropriate, Air Traffic Control (ATC) should be involved. It is important that representation is at a suitably senior level to ensure cogent input and decision making.
- 4.1.3 In addition to any safeguarding links (further discussed at paragraph 10.2) it is important to involve local planning authorities in a more general way in order to secure their support, understanding and possible input. The Aerodrome Licensee needs to know about local development plans in order to assess their impact on aerodrome operations. The police and local emergency services should be involved in aerodrome emergency planning and emergency exercises.

4.2 Partnership with the Civil Aviation Authority (CAA)

- 4.2.1 Under the terms of the Aerodrome Licence there is a statutory duty to seek the approval of the CAA for proposed changes to the aerodrome. Such consultations are normally conducted in co-operation with the CAA's Aerodrome Standards Department, initially through the aerodrome's appointed Inspector.
- 4.2.2 It is good practice to begin by consulting with the appointed Inspector at an early stage in any aerodrome project when proposals and plans are at the concept stage so that the broad requirements of the licensing process can be protected. Certainly, advice should be sought before any significant finance and resources are committed. It is at this stage that the Aerodrome Standards Department will co-ordinate all the expert opinion on licensing standards issues and, if necessary, arrange a development meeting (or series of meetings) with representatives of the aerodrome planning team and the appropriate CAA SRG departments. In the case of minor works, or those carried out at smaller aerodromes, these may be handled entirely by the Inspector. However, each project will be assessed on its merit and, if necessary, managed by a team appointed by the Aerodrome Standards Department on a case by case basis.
- 4.2.3 This early contact is seen as beneficial to the planning process as it is important not to go too far down the planning path without assessing the possible effects of any development against the range of safeguarding and safety criteria. A checklist of the principal criteria to be considered is included at Appendix A.

4.3 Partnership with Department of Transport (Security)

Early liaison should be established with the Department of Transport Aviation Security Branch (AVSEC) on all projects with airport security implications, such as alterations to existing Security Zones.

5 Communication

5.1 Communication Methods

It is essential that the Aerodrome Management considers how they will communicate with airside operators on matters of aerodrome planning. It is important to establish and document systematic processes for effective two-way communication for the timely discussion and resolution of aerodrome planning issues and events. Good communication promotes satisfaction and confidence in the joint decisions that are achieved and compliance with the planning arrangements that follow. It is critical to success to establish suitable forums (or a single body) for the discussion and resolution of performance, development and planning matters with the aerodrome community and to share information and ideas.

5.2 Representation

The selection of representatives for planning and safety groups will largely depend on the purpose of the meeting or committee concerned. However, it is fundamental that representation is at a suitably senior level to enable effective discussion and decision making to be achieved. For safety matters it is strongly recommended that for each company or group one person is nominated as accountable for its Airside Safety Management and as the first point of contact for airside safety issues.

NOTE: For the purpose of this Chapter, only one of a possible range of committees, has been selected as an example of how the airport community can plan and resolve issues of fundamental interest to them all and that example is 'The Airside Safety Committee'. At the smaller airports and aerodromes this committee could be the single forum for discussing and resolving all mutual issues, whereas at the largest airports it may be one of several committees with a sharper focus – in this case – Airside Safety.

5.3 Airside Safety Committee

5.3.1 The Airside Safety Committee provides the essential partnership between aerodrome managers and airside operators to communicate and resolve matters of airside safety and operations. The committee is likely to be headed and administered by senior aerodrome managers and, as well as selected aerodrome authority specialist managers, should have a wide membership of airside operators. Representatives from police, emergency services and ATC could also be included, or briefed periodically on issues that concern their operations. There is a potential for this committee to be a very large group, particularly at the bigger airports. To maintain membership at a manageable level, joint operator groups, such as a Ramp and Baggage Committee or a group of fuel companies could consider nominating selected members to represent group interests. The committee should be given the following broad tasking:

- a) Act as the focus for shared ownership of, and responsibility for, airside safety issues;
- b) Develop policies for safe airside operations;
- c) Consider and resolve airside safety problems;
- d) Promote airside discipline.

5.3.2 Model Terms of Reference for an Airside Safety Committee that may be suitable for issue by an Aerodrome Authority are included at Appendix B to this Chapter.

6 Master Plan

It is critical to success that a Master Plan is produced for the aerodrome. This should be based on a series of broad concepts of how the aerodrome will need to develop over a given time. This plan will need to be the subject of comprehensive consultation and general agreement by the planning team. A Master Plan can take the form of a simple listing of objectives and projects, or at the other end of the scale may be a complex set of documents produced by the dedicated planning team with inputs from all parts of the business. The Master Plan should embody the following general characteristics:

- a) Safety must feature as one of the Key Master Planning Objectives and a requirement for safety assessments for all developments should be formally expressed. This should be reflected in the aerodrome's Safety Management System;
- b) The plan will need to take into account forecast demand for a range of aerodrome activities including traffic levels, passenger numbers, freight throughput and the maintenance or improvement of service levels, together with any special requirements applicable to the aerodrome;
- c) The plan should cover a fixed timescale depending on aerodrome needs and expected future events. Within the life of the plan there should be fixed milestones for review and to commence development of the succeeding plan;
- d) The plan should have flexibility, with arrangements in place for review and updating to meet changing situations;
- e) The plan should be designed to act as the focal point of planning activity such that developments flow from it in an ordered and co-ordinated fashion. Every project should be considered within the context of the whole plan. All too often projects completed in isolation have precluded later development or resulted in limited choice and/or an erosion of safety standards.

7 Contingency Plans

- 7.1 Aerodrome management will need to formulate and maintain a series of contingency plans for all spheres of aerodrome operation and these plans should be associated with the Master Plan to ensure proper integration in the planning process.
- 7.2 To maintain effective operation of the aerodrome a range of contingency plans is required to meet emergency or exceptional operating conditions. The size and scope of these plans will depend on the size and complexity of the aerodrome. In all cases it is essential that contingency plans are subject to continuous review and tested by regular exercises.
- 7.3 Amongst the more important contingency plans for aerodrome operations are, for example:
 - a) Aircraft air and ground emergencies;
 - b) Operations in hazardous conditions of low visibility, strong winds and snow and ice clearance;
 - c) Material hazards and spillages.

8 Ground Handling Policy

8.1 Apron Congestion

Congested operating conditions are a direct threat to a safe apron environment and the degree of ramp congestion is often directly related to the total numbers of vehicles and equipment permitted/required to park and operate on the apron. At those aerodromes that have space constraints and congested apron areas, it is essential that measures are taken to reduce the amount of equipment and vehicles present on aprons and airside roads, e.g. by reducing the proliferation and duplication of vehicles and equipment. It might be possible to relieve congestion by controlling the number of operators permitted to provide ground handling services on the aerodrome where it is not in conflict with other legislation. Aerodrome licensees should be aware of and refer to the Directive and the implementing Regulations covering the provision of ground handling services, in order to ensure that they do not contravene such provisions.

8.2 General Handling Policy

8.2.1 To reduce congestion and promote safe apron operations, aerodrome management should consider the implementation of a ground handling policy which has the specific aim to control to safe limits the number of ground handling vehicles that are permitted to provide ground handling services.

8.2.2 Congestion is a shared problem and an initiative should be undertaken with apron operators to examine and resolve issues of equipment proliferation and duplication. This could include a periodic census of ground handling equipment and vehicles in which individual holdings should be examined and justified. An ideal forum for this work would be a sub-group of the Airside Safety Committee (see paragraph 5.3).

8.2.3 Airports should ensure that all suppliers of ground handling services are required to comply with appropriate airport rules of conduct and statutory safety requirements. Contracts and written agreements are mechanisms for such controls. Airports should monitor compliance by the providers of the service.

8.3 Other Controls

If it is impracticable for other reasons (such as a competition policy legislation) to reduce the number of vehicles operating in congested apron areas to the preferred level, it will be necessary for the aerodrome management to manage any degradation of safety by the introduction of mitigation measures.

9 Apron Equipment Initiatives

Further measures are available to ease apron congestion by rationalising equipment and vehicle use and numbers. Congestion is a shared problem and an initiative should be undertaken with ramp operators to examine and resolve issues of equipment proliferation and duplication. An ideal forum for this work would be a sub-group of the Airside Safety Committee (see paragraph 5.3). The following should be considered:

- a) A periodic census of ground handling equipment and vehicles in which individual holdings should be examined and justified;
- b) A review of overall vehicle and equipment needs with the aim of reducing numbers;
- c) Procedures for the identification and removal of scrap, obsolete and redundant vehicles and equipment from airside;

- d) The use of standard equipment for some handling functions;
- e) The employment of common-use equipment where and when possible, particularly specialist equipment which is subject to only occasional use;
- f) The matching of vehicle dimensions and manoeuvring characteristics (in terms of maximum length and width and turning radii) to ensure compatibility with the layout of aprons and airside roads.

10 Safeguarding

10.1 Safeguarded Surfaces and Public Safety Zones

The safeguarded surfaces around runways, as detailed in CAP 168 Licensing of Aerodromes are designed to protect runway operations from local obstructions. It is good practice for aerodrome managers to develop and maintain good planning communications with the local planning authority in order to establish working co-operation for safety planning based on safeguarding requirements. Officially safeguarded aerodromes have maps, certified by the CAA, lodged with their local planning authorities and should have a formal safeguarding process in place. It is good practice for those aerodromes that are not officially safeguarded to lodge a safeguarding map with their planning authority and to develop their practical understanding of the principles in order to gain co-operation in safeguarding matters to ensure that no new development affects aircraft operations. The same links should be used to receive information on any developments in the vicinity of the aerodrome. The Department for Transport (DfT) establishes Public Safety Zones (PSZ) on the extended centrelines of certain runways.

10.2 Control of Developments

Proposals for development should be checked against the criteria outlined in Appendix A to this Chapter.

11 Planning of Individual Projects

11.1 Development Need

The need for an individual project should ideally be drawn from the Master Plan as a result of some shortfall or demand as defined by the inbuilt 'triggers for change'. The outline operational requirement for a project can thus be established.

11.2 Planning Team

The planning of an individual project requires similar levels of communication and partnership as those described at paragraphs 4 and 5. A joint team should be nominated to develop the plan and progress it to the point where it is handed over to project managers. Leadership of the planning team would normally be retained by the aerodrome management but could be made the responsibility of an operator where the project is airline or tenant sponsored.

11.3 Risk Assessment

- 11.3.1 A risk assessment must be included as a safety management feature of every project or development. It is critical to success that the risk assessment is fully shared by aerodrome managers and the operators concerned.

- 11.3.2 The recognised process for conducting risk assessment for aerodrome developments at licenced aerodromes is published in CAP 729 Guidance on Aerodrome Development Procedures.

11.4 **Agreement of the Plan**

Once all safety and operational aspects/options have been considered, it is important that all concerned agree that the plan represents the best safe solution available for the development in hand. Any reductions in safety levels must be justified and approved under the appropriate Airport Safety Management System process.

11.5 **Sign-Off the Plan**

For any project, facility or service, when planning action has been completed and the plan has been agreed it should be set down in writing and circulated to the members of the planning team. All participating parties should be required to 'sign-off' the plan as a certificate of their acceptance that the content, scope and safety provisions meet the defined need. The flexibility built into the planning strategy enables subsequent updating and amendment if unforeseen circumstances arise, however, the amended plan should again be 'signed-off' after drafting. The process of clearing safety issues should be part of the aerodrome's Safety Management System.

11.6 **Formal CAA Approval**

The procedure described in CAP 729 Guidance on Aerodrome Development should be followed for any aerodrome development. Notwithstanding any prior consultation undertaken with CAA Departments (as described in paragraph 4.2), under the provisions of the Aerodrome Licence, formal notification to the CAA will need to be given before the project is started. However prior consultation should significantly ease the path of the project.

12 **Management of Projects**

12.1 **Project Team**

Aerodrome managers should establish a formal process for the management of projects to provide a recognised standard approach. For each individual project a Project Manager should be nominated to manage the project. The project manager would normally be an employee of the Aerodrome Licensee, but this is not necessarily the best arrangement in all cases. The project team should consist of people who have clearly defined responsibilities in the project programme. These may include representatives drawn from the operators and, if appropriate, the ATC provider.

12.2 **Project Process**

- 12.2.1 There should be joint agreement on the timing and phasing of the project which should also be subject to the approval of the planning team. Where airside tenants or area occupants are involved, the timing should also be agreed with them to permit alternative safety and operating arrangements to be made.
- 12.2.2 The project team should hold regular progress meetings to monitor and control the project and ensure firm maintenance of project safety and operational objectives. The team should be aware of the project risk assessment and be prepared to test the validity of the conclusions of that assessment. There should be close monitoring of the safety of aerodrome/airside operations while project engineering work is in progress and when reaching decisions, engineering priorities should be subordinate to the maintenance of safety standards.

12.3 Progress Information

The project team should arrange for regular briefings and updates to be given to the appropriate aerodrome departments and organisations.

12.4 Completion

When construction, installation and layout activity has been completed the product should be tested operationally, to ensure that it meets its specification and is acceptable in service. The work should then be 'signed off' by the project team as meeting safety and operational requirements. At a suitable interval after commissioning a post project audit should be undertaken.

12.5 The Construction (Design and Management) Regulations 1994 (CDM)

For further details applicable to the planning of construction projects arising from the CDM Regulations, see Appendix C to this Chapter.

13 Communication and Notification

13.1 Notification Requirement

- 13.1.1 Aerodrome managements should develop a comprehensive system for the communication and notification to the aerodrome community of aerodrome developments which have safety significance and any related rules. Notification should take the form of written 'Safety Instructions' and compliance with these instructions should be part of the 'Conditions of Use' of the aerodrome. These instructions would normally be produced and distributed as printed documents and it is good practice to make them instantly recognisable by the use of coloured bars, or corners, or some other device on the face page.
- 13.1.2 The following characteristics are suggested for incorporation into the aerodrome notification system:
- In addition to a document title, a numbering system should be used to identify individual instructions.
 - A full distribution list covering all aerodrome operators and agencies should be used. Responsibility should be placed upon operators and agencies to ensure that aerodrome instructions are brought to the attention of all their staff. (A standard statement of words on the face page of the instructions is useful for this and an example that may be suitable for issue by an Aerodrome Authority is included in the Model Safety Instruction shown at Appendix D to this Chapter).
 - Instructions should be issued in sufficient time to enable full circulation to operators and their staff and permit arrangements for compliance to be completed. This should include any alternative safety and operating arrangements.
 - Amendments to instructions should be issued as appropriate.
 - A system to enable the validity or current status of instructions to be ascertained should be established and back copies of instructions should be available for issue to new operators and agencies.
 - Instructions should be formally notified as cancelled when their validity is ended.
 - Electronic information distribution systems could be used to augment, but not replace, the printed instruction system.

- 13.1.3 Aerodrome management are normally responsible for any associated NOTAM action and other notification on or off the airport, including liaison with ATC to agree and promulgate changes to facilities and procedures.

14 Contractors Airside Safety Briefing

14.1 General Requirements

Before a contractor starts work at any airside location, it will be necessary for aerodrome managers to provide a comprehensive safety briefing for the protection, guidance and compliance of works/site supervisors and staff. As a basis for mutual safety planning it should be a requirement of the contract that the contractor must have in place a Safety Management System compatible with that of the aerodrome and which also meets all statutory requirements. This should ensure that supervisors and staff comply with airside rules and works arrangements.

14.2 Contractors' Briefing

The aim of a contractors' briefing is to provide him and his staff with all the relevant safety information needed to achieve the safe completion of any works or activity, without threat and with the least disruption and congestion of normal operations. The briefings provided for term contractors providing maintenance services and those contractors employed for a single project may differ in format but will have the same general content. A written safety briefing should be issued to the contractor as part of the contract and should cover the following:

- a) The general layout of the aerodrome including airside access points;
- b) The location and limits of the works area and the location and limits of contractors sites and storage/parking areas;
- c) The specific security access points to be used and the location and marking of the access routes to be used to reach airside sites;
- d) Methods of control and access for works sites within the apron and Manoeuvring Area including arrangements for crossing taxiways and runways (if applicable);
- e) The methods and equipment to be used for protecting, marking and lighting the boundaries of works sites and for protecting normal aerodrome operations in the vicinity of the site. Also the requirement to control site lighting to prevent distraction of aircraft crews and airside drivers;
- f) The strict timing for the setting up works sites, the start of work, daily permitted working hours at the site and the procedures to be followed for starting and stopping work;
- g) A clear statement of the supervision and liaison structure for the safety management and monitoring of works, including contact details for the key duty personnel concerned. Airside emergency procedures and emergency telephone arrangements should also be covered;
- h) Vehicle and equipment requirements, operating rules and the requirements for staff discipline;
- i) Information on the special safety requirements for aircraft operations in the vicinity of works and the methods of control available on the Manoeuvring Area, including RT communication procedures if appropriate;
- j) Arrangements for the special control of 'hot works';
- k) Requirements for the operation of cranes and other tall structures;

- l) Arrangements for the receipt and movement of heavy or bulky loads;
- m) Requirements for vehicle and area cleanliness, also the implications of Foreign Object Debris (FOD) and loose rubbish hazards for aircraft operations;
- n) The arrangements in place or to be made for the disposal of waste;
- o) Information on the safety implications for their site and staff of special aircraft hazards including blast, vibration, fumes and noise, and also for the site structure to be secure in the event of strong winds;
- p) Information on aerodrome regulations for hearing protection and the use of high visibility clothing.

14.3 **Staff Briefing**

14.3.1 Contractors' staff must be briefed on personal safety issues and the special hazards and rules for their safety whilst on the aerodrome. A verbal briefing is effective because it permits staff to raise safety points and ask questions. It is good practice to produce and issue a general briefing and reference pamphlet and in some cases it may be appropriate to require staff to sign as having understood the briefing.

14.3.2 The staff briefing should include the following:

- a) Airside rules, including give-way rules and vehicle driving rules and requirements;
- b) A resume of the special hazards that may be encountered on the aerodrome and in the vicinity of aircraft with particular emphasis on engine hazards;
- c) Emergency procedures and how to summon help;
- d) The need to remain clear of taxiways and runways and the recognition/warning features when approaching a taxiway or runway;
- e) Action to be taken in the event of becoming lost and the implications and requirements if low visibility conditions are in force;
- f) The implications of night operations;
- g) The limits of no smoking rules;
- h) The use of protective equipment and clothing, particularly hearing protection and the wearing of high visibility garments;
- i) The requirements for the control of debris, obstructions and rubbish, including the proper disposal of waste;
- j) The hazard of food waste as a bird attractant;
- k) The requirement to follow specified routes and remain within areas for their work;
- l) Any ID or pass requirements for staff or vehicles.

15 **Control and Management of Works**

15.1 **Requirement**

As part of the effective safety management of the aerodrome it is essential that, before any work on the Movement Area is authorised, aerodrome managers are satisfied that arrangements are in place which ensure that there is no adverse impact on existing levels of safety. Aerodrome managers should develop and implement a formal system for the strict control, safety management, safeguarding and safety co-ordination of all airside works. To ensure willing compliance on the part of works operators the system should be positive, user-friendly and not appear unnecessarily

restrictive, but should be recognised as a benefit that facilitates, protects and co-ordinates the conduct of airside works.

15.2 **System Characteristics**

The following are the basic safety features and procedures which should ensure that work on the Movement Area is properly conducted and controlled:

- a) The control procedure should link smoothly with the system of notification of Safety Instructions for significant development works. See paragraph 13.1.1.
- b) The system must be safety driven and supervised daily by duty aerodrome operations staff who must have a clear understanding of the works programme and the operational implications.
- c) A permit/approval system should be used to authorise and record the works and should incorporate a comprehensive briefing given by aerodrome management directly to the person supervising the work. An additional permit system should be used for the approval of 'hot work'.
- d) The briefing should cover all safety aspects of the work including permitted hours, site layout, site marking and protection, communications to be used, requirements for look-outs and leader/follow-me vehicles, any significant operational activity in the vicinity of the works area and any limitations to be observed.
- e) Duty aerodrome staff should be responsible for all aerodrome, or part aerodrome closures, operational clearances and co-ordination associated with the work and any notification that is required for both 'on-airport' and 'off-airport'. The works area must be inspected when first set up, then subject to regular monitoring, particularly for night work. The area should be inspected again when work is completed and before approval is given for normal operations to be resumed.

15.3 **Model Safety Instructions, Safety Standards and Guidance Notes**

- 15.3.1 A model Instruction that may be suitable for issue by an Aerodrome Authority dealing with Safety Instructions for Works on the Movement Area and Procedure for the Issue of Works Permits is included at Appendix D to this Chapter.
- 15.3.2 A model Safety Standard dealing with the standards to be adhered to by contractors working within an Aerodrome Authority's premises that may be suitable for issue by an Aerodrome Authority is included at Appendix E to this Chapter.
- 15.3.3 Model guidance notes that may be suitable for issue by an Aerodrome Authority dealing with Hot Works in External Airside Areas is included at Appendix F to this Chapter.

16 **The Aerodrome Manual**

- 16.1 The Aerodrome Manual is a legally required document under the terms of the ANO. CAP 168 Chapter 2 gives guidance on the content that should, in broad terms, explain how the aerodrome is operated safely.
- 16.2 It is essential that the policies and procedures covering planning and development of projects outlined in this Chapter are included in the Aerodrome Manual.

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Appendix A Aerodrome Safeguarding Criteria

MANPOOL AIRPORT

1 Checklist of Aerodrome Safeguarding Criteria

NOTE: This list is not exhaustive but covers the main areas of planning concern.

At an early stage in any project it is prudent to check the effects of the development against the relevant safeguarding criteria listed under the following headings:

- a) Is there any penetration of CAP 168 or ICAO Annex 14 obstacle limitation surfaces?
- b) Is there likely to be any obstruction of radar reference surfaces and if so is such obstruction acceptable in terms of Air Traffic Control?
- c) Will the development affect ILS signals or any other navigation or communication aids on the aerodrome?
- d) Are any lighting schemes associated with the development likely to distract aircraft crews or be confused with visual guidance systems, for example, floodlighting, illuminated signs, car park or street lighting?
- e) Are any landscaping schemes (trees, lakes etc.) likely to attract birds?
- f) Is the development likely to obstruct approach lighting arrays or the planes of Precision Approach Path Indicators?
- g) Is the development likely to affect Obstacle Clearance Heights?
- h) If a Public Safety Zone (PSZ) is established at the aerodrome, is the development likely to increase the numbers of people living, working or congregating within the Zone?

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Appendix B Model Terms of Reference - Airside Safety Committee

Important note: This Appendix represents a model that might reflect the Terms of Reference adopted at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and constitution of the Committee will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of Terms of Reference that are likely to be suitable in order to adequately manage the safety of the airside environment.

TERMS OF REFERENCE – AIRSIDE SAFETY COMMITTEE

- 1 The aim of the Airside Safety Committee is to promote and maintain airside safety. It is the premier forum for the discussion and resolution of all apron safety issues.
- 2 The chairman of the Committee will be the Manpool Airfield Operations Director.
- 3 Membership will comprise selected Manpool Airport managers and a broad representation of the airside operators and agencies across the airport. Individual representatives should be of a suitably senior level and should preferably be the nominated Operations Safety Manager.
- 4 The following are eligible to be represented:
 - a) Aircraft Operators;
 - b) Companies providing aircraft handling services;
 - c) Fuelling companies.
 - d) Local emergency services:– Police, Fire Service and Ambulance Service;
 - e) Air Traffic Control;
 - f) Manpool Airport specialist departments with airside responsibilities and interests;
 - g) Specialist representatives may be co-opted from time to time at the discretion of the chairman.
- 5 The Committee will hold regular meetings. Meeting agendas will be circulated in a timely manner together with any relevant papers for members' consideration.
- 6 There will be a full distribution of Minutes of meetings. Any actions arising from meetings will be annotated in the Minutes and it is implicit that these will be followed through.
- 7 The Committee may from time to time establish and nominate specialist Working Groups to consider and report on particular safety issues.
- 8 The Committee will receive and consider briefings on planning issues and provide operational safety advice on medium and long term changes expected in the industry, such as the introduction of new aircraft, major equipment and new regulations. It will also provide an interface for the examination and resolution of inter-company safety issues.
- 9 The Committee is a body of expertise and experience that will provide advice and report to airport management on airside and apron safety matters. In providing this

advise the committee will consider all aspects of operational safety including the following, which are not in order of priority:

- a) Receive reports and statistics on accidents, incidents and emergencies and advise on trends and solutions;
- b) Receive reports and statistics on airside discipline issues and advise on trends and solutions;
- c) Apron congestion issues and advise on best solutions;
- d) Airside cleanliness issues;
- e) Identification and reduction of shared risks;
- f) Apron equipment issues;
- g) Airside traffic issues;
- h) Standard operating procedures for airside activities;
- i) New and updated airside safety instructions;
- j) Personal protective clothing/equipment issues;
- k) Environmental safety matters such as noise, blast and fumes;
- l) Methods to develop and promote apron safety awareness initiatives, such as poster campaigns and safety presentations/exhibitions;
- m) Snow and ice clearance issues;
- n) Receive reports on significant outages and breakdowns concerning airside fixed facilities;
- o) Receive engineers' briefings and reports on ongoing or imminent airside works and projects and provide safety advice.

NOTE: The existence of an Airside Safety Committee should not substitute for the Safety Management arrangements made by individual organisations represented on the committee.

Appendix C Planning of Construction Projects

The Construction (Design and Management) Regulations 1994

- 1 Chapter 3 relates to safety considerations in the planning of any process. However, it is necessary that any person involved in the planning of any construction project (including alteration, conversion, fitting out, commissioning and renovation, repair, upkeep maintenance, demolition, ground clearance and on services within a building) is aware of the requirements of the Construction (Design and Management) Regulations 1994 (CDM).
- 2 These regulations essentially require that the planning of any construction work, and the completed building, fully allow for high standards of health and safety.
- 3 These regulations take effect at the planning stage of a construction, and it is for this reason that a section is included within CAP 642. They place duties on the following:
 - The client
 - The planning supervisor
 - The designer
 - The principal contractor
 - The contractors
- 4 The *Client* duties include the following:
 - Appointing a planning supervisor
 - Providing information on health and safety to the planning supervisor
 - Appointing a principal contractor
 - Ensuring that those you appoint are competent and adequately resourced to carry out their health and safety responsibilities
 - Ensuring that a suitable health and safety plan has been prepared by the principal contractor before construction work starts
 - Ensuring the health and safety file given to you at the end of the project is kept available for use
- 5 The *Planning Supervisor*, who has been appointed by the client, has duties including the following:
 - Ensuring HSE is notified of the project
 - Ensuring co-operation between designers
 - Ensuring designers comply with their duties
 - Ensuring a pre-tender health and safety plan is prepared
 - Advising client when requested
 - Ensuring a health and safety file is prepared

6 The *Designer* duties include the following:

- Making clients aware of their duties
- Giving due regard to health and safety in design work
- Providing adequate information about the health and safety risk of the design to those who need it
- Co-operating with the Planning Supervisor, and other designers

NOTE: The duties placed on principal contractors and contractors are beyond the scope of this document.

The local office of the HSE can provide further information on the CDM regulations.

Appendix D Model Safety Instruction - Works on the Movement Area and Works Permits

Important note: This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

MANPOOL AIRPORT

SAFETY INSTRUCTION X/200-

SAFETY INSTRUCTIONS FOR WORKS ON THE MOVEMENT AREA AND PROCEDURE FOR THE ISSUE OF WORKS PERMITS

It is the responsibility of all employers to ensure that relevant Safety Instructions are brought to the attention of their staff. However, individuals remain responsible for their own actions and those who are in any doubt should consult their supervisor or manager.

1 Introduction

- 1.1 Construction, maintenance and repair work must regularly be carried out on the Movement Area and aprons at Manpool by day and night. This Instruction details the arrangements in place, the responsibilities of those involved and the procedure to be followed for the safe co-ordination and conduct of airside works.
- 1.2 Other Safety Instructions associated with airside safety procedures have been given wide circulation, but any organisation requiring copies should apply to the Manpool Airfield Operations Manager.

2 Aerodrome Areas Concerned

For the purposes of this Instruction the aerodrome areas in which the following special rules for airside works must be applied are:

- a) The Manoeuvring Area comprising runways, taxiways and associated grass areas;
- b) Aircraft parking areas and apron taxilanes;
- c) Other apron areas including equipment areas, airside roads, stillage areas and cargo handling areas;
- d) Any other area, location or site designated by Manpool Airfield Operations.

3 Works Permit System

- 3.1 The supervisor or sponsor of any airside works must be in receipt of a Works Permit before any work can be started.
- 3.2 Applications for Works Permits should be addressed to the Airfield Safety Unit (ASU) by 1600 hours(L) on the last working day before work is scheduled to be carried out.
- 3.3 Applications should be made directly or by fax using Manpool Form WP1. ASU fax 1234–9876. A specimen copy of Form WP1 is attached to this Instruction.
- 3.4 In exceptional circumstances applications may be passed to the ASU by telephone on 1234–5678.
- 3.5 All Permits are authorised by the Operations Duty Manager (ODM) who will enter on the Permit the conditions applicable to the works which must be adhered to at all times. Permits coloured blue are used for Manoeuvring Area work and white permits for the remainder of airside. A copy of each permit is passed to ATC by the ODM for their information and action.
- 3.6 Before work commences the Permit must be collected from the ASU, who will ensure that the works operator is fully briefed and equipped for the work to be undertaken.
- 3.7 When work is completed the works operator must inform the ASU who will then take the necessary action to restore the area to normal operations, or ensure that it is adequately safeguarded.

4 Exemptions

- 4.1 Certain units are trained and authorised to conduct some urgent work and certain specified works on the Manoeuvring Area such as routine inspections, replacement of light fittings, repairs to pit covers and ILS adjustments, and are not subject to Works Permit authorisation, but clearance must be obtained from ATC. Working parties are to ensure that ATC is fully briefed as follows:
 - a) Area(s) of works;
 - b) Nature of work;
 - c) Operational implications;
 - d) Timing and notification of clearance of site and restoration of facilities;
 - e) Name of responsible person in charge;
 - f) Contact and 'listening-out' arrangements.

5 Responsibilities

- 5.1 The ASU is responsible for the following:
 - a) Issuing the Works Permit on behalf of the ODM and briefing the works supervisor concerned;
 - b) Co-ordinating any closures and diversions required including obtaining ATC clearance, if appropriate, before work starts;
 - c) Specifying and supplying the leader/follow-me cover to be provided and making arrangements for any RT or visual communications to be used;

- d) Briefing the supervisor on the permitted working hours and the layout, protection, marking and lighting of the works area by day and night;
- e) Specifying the vehicle and pedestrian access routes to be used;
- f) Specifying and briefing 'look-out' arrangements;
- g) Briefing the conditions and arrangements for withdrawal of the works if applicable;
- h) Inspecting the area when work has been completed and taking the action required to restore normal operations.

5.2 The works operator is responsible for the following:

- a) The attendance of the works supervisor at the ASU to receive the Works Permit and be briefed on the operational safety aspects of the works;
- b) Ensuring that all airside safety and personnel safety rules are complied with.
- c) Ensuring strict compliance with all instructions given in respect of the Works Permit;
- d) Providing all the materials, signs and lighting for the works area. Barriers and lights used for closures on the Manoeuvring Area will be provided by the ASU;
- e) Preventing debris and rubbish being deposited or left on the Movement Area;
- f) Advising the ASU when work is completed, who will then action 5.1.(h).

6 Term Contractors

Some term contractors such as grass cutters are trained and authorised to operate independently on the Manoeuvring Area with RT communications. Daily Works Permits are required to ensure proper co-ordination and safeguarding of their activities. Also ATC clearance must be obtained before their operations can start.

7 General

- 7.1 There are additional requirements for 'Hot Works'. These are the subject of a separate Safety Instruction.
- 7.2 Any questions arising from this Instruction should be addressed to the Airfield Operations Manager, telephone 1234-5678.

MANPOOL AIRPORT	
WORKS PERMIT (Form WP1)	
All times local	
Issued by Operations on	To
Serial No.	Location
Date/Time Effective	
Date/Time of Expiry	
Description of Work and Equipment	RTF Cover By
	Call Sign
	Vehicle/Equipment Parking
Poor Visibility Restrictions *None/No Work when RVR below _ _ _ _ Metres	
On completion of work check whether ASU require to check the area	
Safety Instructions	Operations Ext
	ASU Ext
Authorised By	Confirmation ATC Supv.

Figure 1 Specimen Work Permit

Appendix E Model Safety Standard to be Adhered to by Contractors Working Within an Aerodrome Authority's Premises

Important note: This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

1 Introduction

All contractors or suppliers involved with construction or maintenance activities within Manpool Airport controlled buildings or facilities need to be properly managed to minimise risks posed to staff, airport operators, members of the public or the business.

Appropriate management responsibilities and approaches need to be established to control and/or monitor this activity whether suppliers are directly employed by Manpool Airport or by a third party organisation.

The following safety issues should be considered in respect of supply chain management:

- Any interfaces between contractor activity and the business, especially to protect the public
- Fire safety
- Control of emergencies
- Operational impact
- Application of airport approvals
- Application of airport controls

2 Airport Controls and Reference documents

Current processes, systems and standards include the following, (local arrangements to supplement these will also exist);

- Major and Minor Project processes
- Manpool Airport Supply Chain acquisition and supplier development process
- Approval processes, Manpool Airport Property Management Department, Retail, Maintenance (for direct works and also third party works)
- Recommended risk management system
- Airport building and infrastructure record and information systems
- Safety performance measurement systems

- Engineering Instructions (including permits) and Manpool Airport Design Standards
- Operational controls (Terminal control/monitoring systems to manage contractors from appointment onwards) and Emergency procedures
- 'Manpool Airport Health, Safety and Environment Requirements for Suppliers

3 Manpool Airport control authorities

Internal groups include, Airport Management Committee, Terminal Manager's Office, Property, Retail and Maintenance approvals managers and Building Control. External authorities include Fire authorities, CAA, NATS, HSE and Local Authorities.

4 Action

Managers responsible for the safety of contractor activity should ensure that appropriate controls exist through the thorough application of the processes, systems and standards set out in this Safety Standard

Questions relating to this Safety Standard should be addressed to your local Safety Account Manager or Safety Office.

Appendix F Model Guidance Notes - Hot Works in External Airside Areas

Important note: This Appendix represents model guidance that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

1 Guidance Notes for Establishing the Need for Hot Work in Airside Areas

It is important that all alternative engineering methods of working are considered before concluding that Hot Work is the solution.

NOTE: Pro-formae documents and forms associated with the procedures described in these notes are included in an Annex.

2 Guidance Notes on the Risk Assessment of Hot Works

NOTE: The terms used in these guidance notes have the following meanings:

Nominated Representative An individual nominated by the organisation that will carry out the work who is experienced in or knowledgeable about 'Hot Works' in airside areas. The Nominated Representative is responsible for ensuring that the work is conducted in a safe manner and in accordance with terms and conditions set by Manpool Airport.

Authorised Person An employee of Manpool Airport who is suitably experienced and knowledgeable about 'Hot Works' in airside areas. The Authorised Person is responsible for conducting all necessary safety assessments, setting any necessary terms or conditions under which the work shall be carried out and for authorising the work to take place.

Skilled Person The individual who will carry out the work (or who is capable of carrying out the work but will supervise the work only and who will be in attendance at all times that the work is taking place).

2.1 The need and the requirement to risk assess Hot Work is a specific duty under the Management of Health & Safety Regulations 1999. It is also a duty under the Health & Safety at Work Act 1974, the Control of Substances Hazardous to Health Regulations 1999, the Personal Protective Equipment Regulation 1992 and the Provision and Use of Work Equipment Regulations (PUWER) 1998. Some of these also place duties on employers to provide safe places of work and for safe systems of work to be employed.

2.2 Assessing the risks and establishing the Safe System of Work relevant to Hot Work is the responsibility of the Nominated Representative.

- 2.3 The Nominated Representative must be familiar with both the theoretical and practical problems encountered during Hot Works.
- 2.4 The Nominated Representative must be aware of the types of safety and fire protection equipment available for use when Hot Work is required.
- 2.5 During the Risk Assessment of the Hot Work the Nominated Representative will need to be aware of all conditions related to the particular site and other indirect factors, i.e. the weather, operations etc.
- 2.6 In determining the duration of the Hot Works Authorisation, the Authorised Person shall consider the likelihood of changes in both the hazards identified and their risks and shall set the validation period accordingly.
- 2.7 The Risk Assessment process must determine the Skilled Person's competence. The Skilled Person's competence must extend to, or exceed, the use of fire protection equipment and any other aspects of the Risk Assessment. If the Risk Assessment shows any discrepancy between the requirements and the Skilled Person's competence, other competent Skilled Persons must be used for the task.
- The choice of Safe System of Work will only be as good as the Skilled Person who works through it. It is, therefore, vital that the Skilled Persons are competent through being fully trained, instructed and informed so that the work continues to its conclusion in a safe manner.
- 2.8 The Risk Assessments covering Third Party Minor Works/Equipment Repairs will be carried out by the Skilled Person undertaking the work after consultation with the Authorised Person.

3 Guidance Notes on Training, Instruction and Information (TII)

- 3.1 The TII which is required must be provided by the Nominated Representative at the site of work.
- 3.2 TII must follow the guidance in these notes.
- 3.3 TII given must relate to the type of work which the Skilled Person is expected to encounter and it must be emphasised that if the Skilled Person does not feel that they are competent to proceed with a task then they must call for assistance from the Nominated Representative.
- 3.4 Elements which must be covered in the TII are at Appendix C to achieve a Safe System of Work.
- 3.5 All equipment used in connection with Hot Work must be either certificated to a known standard or tested to ensure its safety during its use in Hot Works.
- 3.6 All Manpool Airport staff training related to Hot Work must be recorded on the personal file of the staff member and the individual must ensure records are maintained.
- 3.7 TII Syllabus - The training for Nominated Representative, Authorising Authority and Authorised Persons will normally include the following:
- undertake and evaluate Risk Assessment
 - understand the technical activity and its safety implications
 - understand associated fire hazards
 - understand how to use fire fighting equipment
 - know where the fire barriers are
 - know how to implement control measures
 - know what Personal Protection Equipment should be used

3.8 TII Syllabus - The Training for Skilled Persons will normally include the following:

- technically competent to carry out the work
- able to use fire fighting equipment
- knowledge of escape routes
- know, in an emergency, how and who to call for help
- understand 'Hot Work' authorisation procedure
- know the appropriate control measures/Risk Assessment
- where and how to obtain medical assistance

4 Guidance Notes on Equipment

4.1 Equipment used must have an EU certificate of conformity. Records of inspection and maintenance are to be kept by the Line Manager.

4.2 Fire fighting equipment must be assembled and maintained by a competent person who has received the necessary training run by a recognised body, fire extinguisher supplier or a qualified company. The competent person must successfully pass an examination at the end of the training course and be re-tested every five years.

5 Guidance Notes on Isolation Protocol for Smoke Detectors/Fire Alarm Loops for Dusty Work

This protocol is aimed at preventing false Fire Alarm, smoke detector activations caused by dust from Construction Sites. It is also aimed at provide a suitable method of controlling the capping of smoke detectors which may be contaminated by the ingress of dust.

All work on Fire Alarm System devices or cabling which require modifications or removal must have the approval of Airport Authority Fire Service.

5.1 The Principal Contractor, (____), will give the Engineering Manager, Terminal Manager and Airport Fire Service as much advance notice of planned work as possible and in any event not less than 48 hours.

5.2 The Principal Contractor, (____), will agree in advance with Airport Fire Service which smoke detectors/fire alarm loops are to be isolated and covered with the correct dust caps.

5.3 The Airport Fire Service will notify the Engineering Manager of the agreed isolations (sprinkler system, fire alarm loops, smoke detectors or dust caps fitted) and enter the details on the fire log.

5.4 All dust caps required for the project will be provided by Engineering Manager, no other type will be permitted. The dust caps supplied shall be individually numbered and shall be clearly marked on the outside of the cap which shall remain visible when fitted. The only person/persons permitted to fit a dust cap onto a smoke detector will be an employee of the Principal Contractor, (____). It shall be the responsibility of Principal Contractor, (____), to provide a written document to record where the detector caps have been deployed. The document shall contain the following:

- Start/ Completion Time
- Start/ Completion Date
- Location of smoke detector capped with dust cap
- Name of person who fits/removes dust cap on smoke detector

- Serial number dust cap
- Reason for capping smoke detector

All dust caps must be removed, returned and accounted for at the end of each work period. A copy of these details will be faxed to the Engineering Manager who will then retain the document for any subsequent audit. Audits will be carried out at regular intervals.

- 5.5 The Principal Contractor, (____), will contact the Engineering Manager to give a brief description of work planned for the work period.
- 5.6 The Principal Contractor, (____), will fit dust caps to the smoke detectors as agreed above in item 5.4. The document indicating which smoke detectors have been capped will be faxed to Engineering Manager on extension 1234.
- 5.7 The Principal Contractor, (____), will then request that the smoke detectors which have caps applied are inhibited on the Fire Alarm System. During normal working hours this will be via the Airport Fire Service on extension 5678, and out of hours via the Engineering Manager on extension 1234.
- 5.8 The Principal Contractor, (____), will endeavour to create the minimum amount of dust during the work by using screens, dust extraction etc.
- 5.9 The Principal Contractor, (____), will clear up any debris and wait one hour before removing the dust caps and recording the removal as detailed in item 5.4.
- 5.10 The Airport Fire Service /Engineering Manager will reinstate the smoke detectors when notified by the contractor that work has been completed and the one hour settling down period is over. The Engineering Manager will reinstate the smoke detectors by using manual lockout, where possible to check the point value prior to reinstatement.
- 5.11 The Principal Contractor, (____), will not leave site until the smoke detectors have been reinstated (fire watch period). The Airport Fire Service /Engineering Manager will confirm when this has been completed. After recording the removal of the detector caps, the document will be signed by the Principal Contractor's Site Supervisor and faxed to the Engineering Manager on extension 1234.
- 5.12 The Principal Contractor, (____), will be issued with a series of numbered dust caps No.____ to No.____. These caps must be accounted for at all times. Lost or damaged caps must be reported to the Engineering Manager immediately. At the end of the project all caps must be returned to Engineering Manager. It will be the Principal Contractor's responsibility to demonstrate that there are no smoke detectors remaining with caps attached.

6 Guidance Notes on Hot Work Audit

- 6.1 The purpose of the audit is to review Hot Work procedures and identify shortfalls in the operation of Safe Systems of Work.
Audits shall be carried out by the Authorised Person or a senior representative of Manpool Airport.
- 6.2 A model Audit form is included in the Annex.
- 6.3 Part 1 of the form contains details of the Audit. The auditor must fill in Audit date and time, and their own name. The Location and Description of Work must be copied from the Hot Work Authorisation. The name of person (auditee) and their company name shall also be recorded by the Auditor.

6.4 Part 2 of the form deals with the documentation. This section covers the requirements for Risk Assessments, and appropriate permits and Authorisations to be issued:-

- i) Has a Risk Assessment been undertaken, and is it adequate?
- ii) Has the Hot Work Authorisation been completed?
- iii) Have the Risk Assessment and Authorisation been signed?

If any of the documentation, above, is not found Hot Work must be stopped!

6.5 Part 3 deals with Skilled Person Safety briefings. The Auditor shall question the Skilled Persons' knowledge of the site, safety on site and dealing with emergencies.

6.6 Part 4 deals with On-Site aspects of the Works. The following items should be checked although the list is not exhaustive:- Housekeeping; Fire fighting equipment; Hot Work process equipment; Whether hazards and risks have changed from those stated on the Risk Assessment, and therefore re-assess the need for a new Risk Assessment; and use of identified control measures.

6.7 The Auditor shall determine an overall assessment of the Safe System of Work, being employed, in Part 5. The Assessment criteria are used to determine the effectiveness of each answer to questions in Parts 2, 3 and 4 of the Hot Work Audit form.

An assessment of 1 shall be allocated where all or nearly all questions are answered No, or a more serious breach of the Safe System of Work has occurred, i.e. where there is no Risk Assessment or Permit is available.

An assessment of 2 shall be allocated in circumstances where the documentation is in place but is not being followed.

The choice of Assessments of 3, 4 or 5 will be based on Auditor's objective observations.

6.8 Part 6 deals with acceptance, of the audit findings, by the Skilled Person, and the Nominated Representative. Copies of the audit form shall be distributed accordingly. This should promote and encourage accountability for Hot Works.

7 Safe System of Hot Work

A Safe System of Work can be defined as a formal procedure which results from a systematic examination of a task in order to identify all hazards and assess the risks, and which identifies safe methods of work to ensure that the hazards are eliminated or the remaining risks are minimised.

7.1 The system of work will depend on the level of residual risk following the risk assessment carried out by the Skilled Person and Nominated Representative.

7.2 All fire protective equipment must conform and be tested to the statutory regulations and be marked and certificated as such.

7.3 When the Risk Assessment has been carried out, the residual risk will have been established and those risks which require control measures will be clearly set out.

7.4 A Safe System of Work will be agreed between the Nominated Representative and those carrying out the Hot Work.

The Hot Works process will follow the flow chart at Appendix B.
Issues to be agreed on the Safe System of Work shall include:

- Personnel (including Supervision)
 - Equipment
 - Materials
 - Environment
- 7.5 Procedures for the isolation of fire systems & sprinkler system must be linked to the Hot Work Authorisation.
- 7.6 Hot Work Authorisations must be numbered and have an audit trail.
- 7.7 Staff issuing Hot Work Authorisations need to be competent, in fire prevention, instructional techniques, risk assessment and knowledge of the local fire protection system, this may involve further training.
- 7.8 Anyone requesting a Hot Work Authorisation needs to be skilled in undertaking Hot Works.
- 7.9 Appropriate notice for a Hot Work Authorisation must be given; the normal period should be 48 hours. Consideration should also be given to notification to the insurers and others regarding isolation of life critical systems within Manpool Airport buildings.
- 7.10 Site inspections must be completed by the Nominated Representative or his nominated deputy for a minimum of one hour after completion of the work.
- 7.11 If work is to be suspended the Person in Charge of the work must carry out a fire watch as stated on the Authorisation and a review of the site undertaken before re opening the Authorisation.
- 7.12 The period the Hot Work Authorisation covers must be commensurate with the level of risk, i.e. low risk longer period, high risk shorter period.
- 7.13 Hot Work Authorisations must be issued for specific work and not a general area.
- 7.14 On completion of the Hot Work, the Authorisation will be returned to the Authorised Person and cancelled, the original will be held on file by the Engineering Manager. All appropriate documentation shall be held by the Authorised Person for the duration of the Authorisation.

8 Safe Systems of Hot Work - Airside Movement Area

- 8.1 Operators must comply with the guidance contained in CAP 642 Airside Safety Management.
- 8.2 Where the work is to be conducted within 16 metres of a fuel store, special prior authorisation and additional precautions are required. For this approval the Airport Fire Service Duty Station Officer shall be consulted.
- 8.3 No Hot Work will take place within 16 Metres of an Aircraft.
- 8.4 A fully completed Airside Work Permit must be obtained from Airside Operations Safety Unit.
- NOTE:** An Airside Works Permit is valid for a maximum of 24 hours only.
- 8.5 The Hot Work Authorisation shall be fully completed prior to the issue of an Airside Work Permit.
- 8.6 Additional Safety Requirements may be placed upon the operator and included on the Airside Work Permit.

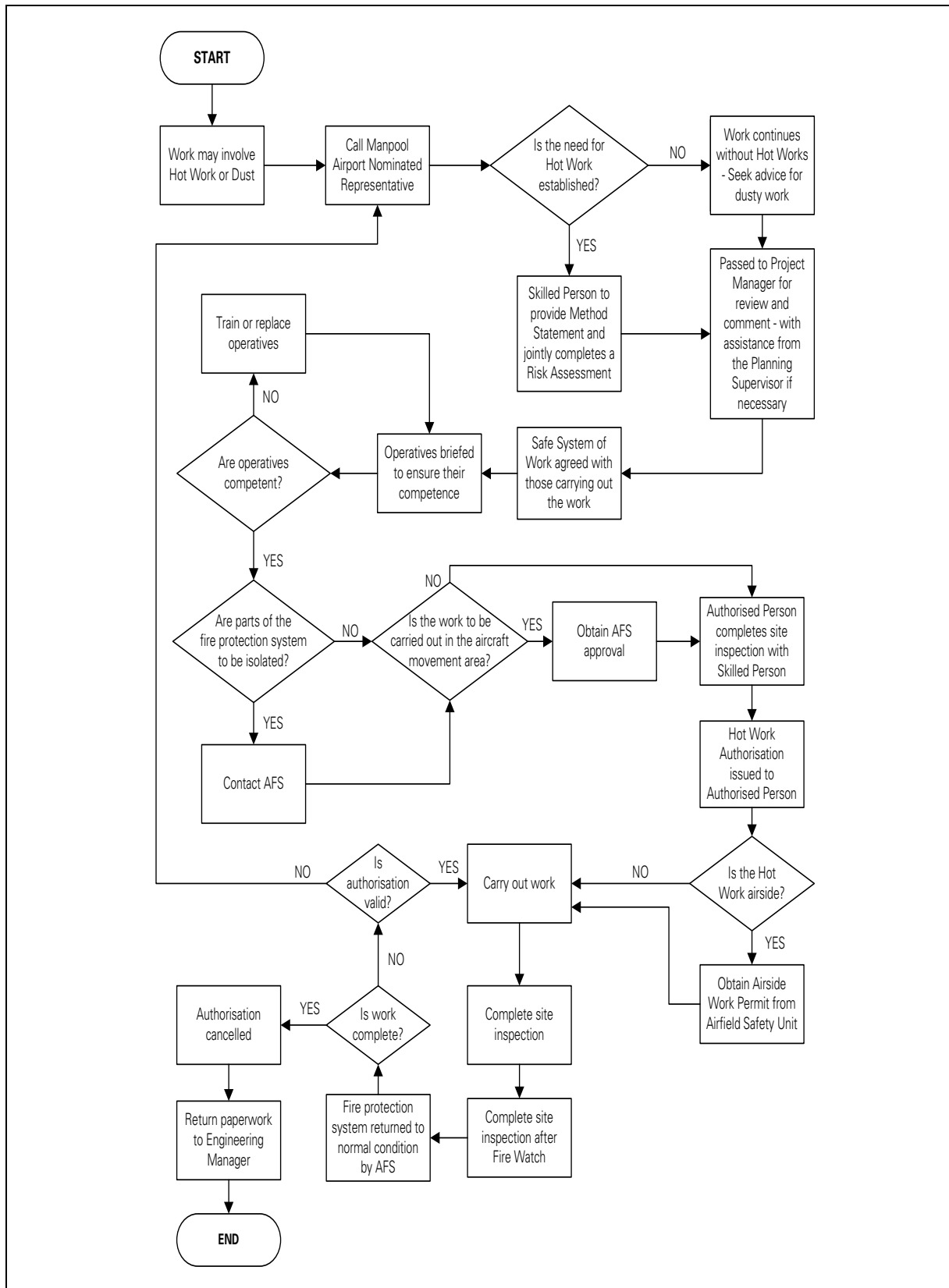


Figure 1 Hot Works Process Chart

Likelihood		RISK = LIKELIHOOD X SEVERITY			Qty. Approvals:	
Definitely	L3	Medium risk	High risk	High risk	Fire Extinguishers	CO2
Likely	L2	Low risk	Medium risk	High risk	Dry Powder	Sprinkler Systems:
Unlikely	L1	Low risk	Low risk	Medium risk	Foam	Airside work Permit:
		S1	S2	S3	Water	Confined Space Entry:
		Slight Impact	Significant	Major Impact	FireBlanket	
		Severity				

Fire Alarm Systems: Y/N
Sprinkler Systems: Y/N
Airside work Permit: Y/N
Confined Space Entry: Y/N

Description of work: Method statement: Risk assessment team members:		Location Company/Dept/Section Date completed Signed (Person in Charge) Nominated Representative:			
Page	of	Remaining Risk/High/Medium/Low	Action required, Priority, Target date	Person Responsible	Completion Date
Hazards identified, Harmful consequences, Persons at risk	Existing control measures and their effectiveness				

Figure 2 Hot Work Risk Assessment

Figure 3 Hot Works Method Statement

HOT WORKS METHOD STATEMENT	Ref.No
Name of operative of works:	
Contact Number / Radio call sign of operative and channel to be used (during works):	
Company:	
Method Statement of works to be completed (use separate sheet if required):	
Pre & post Works contact No's:- Engineering Manager 3610 ☐ ATC 5113 ☐ AFS 3455 ☐	
Location of Works: <i>Work area drawing must be attached</i> Locations:- Duration of works: Equipment to be used Equipment conforms to Manpool Apt Safety Requirements ☐ Fire fighting equipment at location of works (<i>tick all applicable boxes</i>) : 5Kg CO2 ☐ 9L Foam ☐ 9 Kg Dry Powder ☐ 9L Water ☐ Fire Blanket (Min 1.2m x 1.2m) ☐ Welding/Grinding spark guard sheet (Min 1.8m x 1.8m) ☐	
PPE to be used	
Public / Staff protection measures taken	
Emergency contingency plan:	
Site is to be monitored for a period of not less than * * hour(s) after completion of the works ☐ As the undertaker of the works, I have read, understood and will comply with MANPOOL - PROCEDURE FOR HOT WORKS . See the Health & Safety Awareness booklet for actions to be taken by you.	
Print Name	Signature Date..... / /

Figure 4 Hot Work Authorisations

Hot Work Authorisations No: HW			
1. Location of Hot Works:			
2. Description of Work and Equipment:			
Type of Equipment to be used (please tick the box below):			
Oxy-Acetylene ☐	Propane Torch ☐	Arc Welder ☐	Cutter/Grinder ☐
Hot Air Gun ☐	Plasma Cutter ☐	Belt Vulcaniser ☐	Bitumen Boiler ☐
Others please specify			
3. Authorisation period:			
From	Date:	To	Date:
	hours		hours.
4. Details of Supplier & Person in Charge of Works:			
Supplier's Name:	Company:	Telephone No.:	
.....			
Person in Charge's Name:	Company:	Telephone No.:	
.....			
Nominated Representative:	Company:	Telephone No.:	
.....			
5. Requirements			
Airside Work Permit	YES/NO	Permit No:	
Confined Space Entry Permit	YES/NO	Permit No:	
Method Statement Approved	YES/NO		
Hot Work Risk Assessment Approved	YES/NO		
Operator Safety Briefing	YES/NO		
Fire Alarm System Isolation	YES/NO	Sanctioned by:	
Sprinkler Isolation	YES/NO	Sanctioned by:	
Sprinkler System Inhibits required:			
.....			
Fire Alarm System Inhibits required:			
.....			
Additional Safety Requirements:			
.....			
Signed AFS Duty Station Officer (for Airside Hot Works)			

Figure 4 Hot Work Authorisations

6. Approved: The above work is authorised to proceed for the duration of the works detailed and under NO circumstances for more than a maximum of 28 days in accordance with the Safety Specification included in Works Contracts, Airport Engineering Instructions and the requirements set out in the risk assessment.	
Fire Watch period.....Hour(s) This authorisations is valid only when signed by the Authorised Person.	
Authorised Person (Print name):	Telephone No.:
Title:	Date:.....
Signature:.....	Time:
7. Notification	
Engineering Duty Manager	Date:.....
YES/NO	Time:
Operations Duty Manager (for Airside Hot Works only)	Date:.....
YES/NO	Time:
8. Acknowledgement	
I understand the hazard of this work and the precautions to be taken. These have been fully explained to the Persons carrying out this work and I consider them competent to do it safety. I will return my copy of this authorisations to the Authorised Person when the work has been safely completed.	
Name of Person in Charge	Company
Person in Charge Signature.....	Date:.....
	Time:
9. Clearance	
I hereby declare that the work described on this Authorisation has been satisfactorily completed/ stopped and made safe and that all persons under my control have been withdrawn.	
Person in Charge Signature.....	Date:.....
Time:	Time:
I accept the work has been safely completed/Stopped	
Signature.....	Date:.....
(Nominated Representative)	
10. Cancellation	
This Authorisation is Cancelled and the original has been returned to me and filed by the Engineering Duty Manager	
Authorised Person signature	Date Time
The PERSON IN CHARGE OF THE WORK will notify Engineering Manager prior to starting and again on completion of works on extension 3610	

Figure 5 Hot Work Audit

Audit No. HW...../.....			
1. Details			
Audit Date:...../...../.....		Time of Audit:	Audit By:
Details of Location:.....			
Description of Work:			
Auditee:		Company:	
2. Documentation			If No write down reason why below.
a. Are Authorisations available?	Y	N	.....
b. Are Authorisations completed and signed?	Y	N	.....
c. Is Risk Assessment (R.A) available?	Y	N	.....
d. Is R.A completed and signed?	Y	N	.....
e. Do Authorisations and R.A number match?	Y	N	.....
f. Is Method Statement Available?	Y	N	.....
g. Are other Authorisations available and correct?	Y	N	.....
3. Skilled Person Safety Briefing			
a. Knows where Fire Call points are?	Y	N	.....
b. Knows what the emergency number is?	Y	N	.....
c. Knowledge of fire appliances?	Y	N	.....
d. Aware of hazards?	Y	N	.....
e. Knowledge of Hot Work?	Y	N	.....

Figure 5 Hot Work Audit

4. On-Site			
a. Housekeeping in order	Y	N	.....
b. Fire appliances match R.A?	Y	N	.....
c. Fire appliances in good order?	Y	N	.....
d. Hot Work equipment in order?	Y	N	.....
e. Are Hazards different from R.A?	Y	N	.....
f. Are the control measures in place?	Y	N	.....
5. Overall Assessment of Safe System of Work (SSOW)			Circle appropriate number
5 No discrepancies. Excellent SSOW operated. 4 Only one discrepancy. Good SSOW operated. 3 Several discrepancies. However SSOW not compromised. Fair SSOW operated. 2 Many discrepancies that mean SSOW is compromised. Hot Work shall be suspended until Corrective action implemented. 1 One or many serious discrepancies that mean SSOW has been severely compromised. Hot Work shall be stopped and the Hot Work Authorisations cancelled.			
6. Acceptance: Audit findings issued to the following personnel after signature:			
Audit assessment accepted by:		Audit findings to be copied to:	
Auditor signed by:.....		Authorised Person	
Person in Charge of the work signed by:.....		Nominated Representative	
Nominated Representative signed by:		Person in Charge	
(as applicable)		Engineering Safety Manager/	

Figure 6 Model Nominated Representative Certificate**MANPOOL AIRPORT LTD ENGINEERING****HOT WORK SAFETY PROCEDURES****NOMINATED REPRESENTATIVE CERTIFICATE**

To:..... Certificate No:.....

Job Title:..... Section/Department **or**
Company name:.....

1. You are appointed as a Nominated Representative in accordance with Manpool Airport Ltd's Hot Works Authorisation Procedure.
2. The purpose of the role of Nominated Representative is to:
 - a) Assess the need for Hot Work
 - b) Assess the Hazards and Risks associated with the Hot Work
 - c) Organise the issue of a Hot Work Authorisations from the Authorised Person.
3. Your responsibilities as a Nominated Representative cover the following tasks:
 - a) Undertake and co-ordinate the Risk Assessment
 - b) Define the safe system of work.
 - c) Be familiar with the Hot Work process.
 - d) Be familiar with the type of Hot Work requested.
4. As a Nominated Representative you shall be aware of fire prevention techniques and of any local aspects.
5. As a Nominated Representative you shall be competent in both Hot Work procedures and, have received annual fire training.
6. This certificate shall be reviewed at 3 yearly intervals and cease to be valid should you be transferred from these duties.

Signed: Project / Engineering Manager

Print Name:

Date:.....

Figure 7 Model Authorised Person Certificate**MANPOOL AIRPORT LTD ENGINEERING****HOT WORK AND FIRE SAFETY PROCEDURES****SENIOR AUTHORISED/AUTHORISED PERSON CERTIFICATE**

To: Certificate No:

Grade: Section/Department:

1. You are appointed as a Senior Authorised/Authorised Person (delete as appropriate) in accordance with Manpool Airport Ltd's Hot Works Authorisation Procedure.
2. Your responsibilities are extended to cover the authority to produce and issue Authorisations for Fire System Isolations and Sprinkler Isolations in accordance with Airport Engineering Instructions.
3. The purpose of the role of Authorised Person is to:
 - a) Assess the need for Hot Work.
 - b) Ensure safe Hot Work procedures are followed.
 - c) Issue Authorisations/Standing Instructions (delete as appropriate) where appropriate.
4. Your responsibilities as Authorised Person cover the following tasks:
 - a) Assess the suitability of the Risk Assessment, and other information presented in support of request for Hot Work
 - b) Be familiar with the Hot Work process.
 - c) Be familiar with the type of Hot Work requested.
 - d) Have knowledge of the fire strategy for the building(s) or areas of management. This includes any associated fire systems work, isolations or work impacting on the fire strategy of their building are taken into account.
 - e) Issue the appropriate Authorisation/Standing Instruction.
5. This certificate shall be reviewed at 3 yearly intervals and cease to be valid should you be transferred from these duties.

Signed: Authorising Authority

Print Name:

Date:

Figure 8 Model Authorising Authority Certificate**MANPOOL AIRPORT LTD ENGINEERING****HOT WORK AND FIRE SAFETY PROCEDURES****AUTHORISING AUTHORITY CERTIFICATE**

To:.....

Grade:..... Section/Department:.....

1. You are appointed as an Authorising Authority in accordance with Manpool Airport Ltd's Hot Works Authorisation Procedure.
2. Your responsibilities as Authorising Authority cover the following tasks:
 - To ensure that any person appointed as a Senior Authorised Person or Authorised Person is suitably qualified, experienced and trained to satisfy the requirements as laid down in Manpool Airport Ltd's Hot Works Authorisation Procedure.
 - Implementing, administrating, monitoring and auditing the application of these instructions.
3. This certificate shall be reviewed at 3 yearly intervals and cease to be valid should you be transferred from these duties.

General Manager, Engineering

Date:.....

Chapter 4 Airside Vehicle Operation and Driving

1 Introduction

- 1.1 This Chapter gives guidance and recommends standards to be set by airport authorities, aerodrome operators and airside contractors and operators for drivers and vehicles operating airside. It includes material on driver qualification and testing and on vehicle standards.
- 1.2 Driving on the airside of an airport in close proximity to aircraft and within the areas of intense activity which they generate, usually in a restricted space, requires knowledge of the rules and standards of conduct in areas primarily laid out for aircraft, not vehicle, operation.
- 1.3 The objective of these guidance notes is to minimise the risk of accidents and injury to persons, and damage to aircraft and property, arising from the use of vehicles in airside areas. They are intended to assist airport authorities in establishing a regime where staff who are required to operate vehicles and equipment on the airside are properly trained to do so in a safe manner with the full knowledge of the relevant rules and instructions and an awareness of the consequences of contravening them. Guidance is also provided for employers regarding the provision and safe use of vehicles and equipment.
- 1.4 It is recognised that every aerodrome authority and vehicle operator on the aerodrome will need to consider carefully the degree of applicability of the material in this Chapter to its own operations. It is also recognised that authorities may need to apply control measures in addition to those described.
- 1.5 The Airport Operators Association (AOA) has developed a comprehensive scheme that enables an airport operator to manage the operation of vehicles in airside areas. Further details of the scheme are available from the AOA¹.

2 Key Elements in the Regime

There are four key elements in the regime referred to in para 1.3. These are as follows:

2.1 Rules and Procedures

Overall responsibility for the safety of airside operations lies with the aerodrome authority, which is required to comply with the requirements of the CAA (principally the provisions of CAP 168 Licensing of Aerodromes and other CAA publications), and of the relevant Health and Safety legislation. The aerodrome authority will need to publish comprehensive rules governing the access and operation of vehicles and mobile equipment in the airside areas. Employers and employees are in turn responsible for compliance with the rules set out by the aerodrome authority and with any legislation directly related to their specific activities.

1. Airport Operators Association, 3 Birdcage Walk, London, SW1H 9JJ, UK, Telephone: 020 7222 2249, Fax: 020 7976 7405, www.aoa.org.uk.

2.2 Training and Testing

2.2.1 The aerodrome authority will need to establish a system that ensures that all staff who are permitted to drive and operate vehicles and equipment in airside areas are competent both in the operation of the vehicles and in their operation in those areas where they are permitted to drive. Such a system will specify minimum standards of knowledge and practical skills for drivers and will include initial and refresher training and testing. Similar minimum standards will need to be set for vehicles that are permitted to operate in airside areas and for the testing and approval of these vehicles. The aerodrome authority will need to conduct suitable audits in order to assess the effectiveness of the training and testing, and other arrangements to ensure competence of drivers and serviceability of vehicles.

2.2.2 At many major airports, the aerodrome authority will delegate some training and testing functions to company operators. It is important that such delegation is carried out within the terms of the Safety Management System evolved by the aerodrome authority. Where training responsibility has been delegated to airside operators or other organisations, the aerodrome authority will need to undertake regular audits of training and testing regimes and may require airside operators to conduct internal audits.

2.3 Communication and Monitoring of Standards

There will need to be a system for monitoring the standards of airside driving activities. The safety of airside vehicle operation will depend substantially on the proper flow of information between the aerodrome authority and the operators and drivers of vehicles. The rules set out by the aerodrome authority must be unambiguous and the channels of communication adequate. Company operators must provide all the information needed by the aerodrome authority to ensure the maintenance of proper standards among personnel and in equipment. In addition to the legislative requirements that form the basis of the need for co-operation and co-ordination on multi occupied sites such as airports, monitoring the effectiveness of existing rules and procedures is an essential part of any Safety Management System. In many cases it will be necessary for the aerodrome authority to co-ordinate the flow of information.

2.4 Airside Performance Management

There will need to be a system for monitoring compliance with the aerodrome authority's standards and for taking remedial action where necessary. Full details of the system must be available to all companies and individuals who are engaged in airside operations. See Chapter 6 for further guidance on Performance Management.

3 Airside Driving – Rules and Procedures

The aerodrome authority is responsible for the establishment of airside vehicle rules and procedures and for the dissemination of information to company operators. A single overall guidance document should be produced which refers as necessary to other more detailed sources of information. This main information document should include material on the subject described in the following paragraphs.

3.1 The Legal Framework

The legal framework within which aerodromes operate is covered in such documents as the Air Navigation Order, CAP 168 Licensing of Aerodromes, Airport Byelaws, Health and Safety at Work legislation etc.

3.2 **Drivers – Basic Qualifications and Medical Requirements**

- 3.2.1 All holders of an Airside Driving Permit should have certain minimum qualifications. Typically, they should hold a full UK Driving Licence valid for the relevant vehicles or, as an alternative, in the case of HGV or unconventional vehicles, a Certificate of Competence (usually issued by the vehicle operator) that indicates that the holder has demonstrated competence to operate the particular vehicle. The standards against which the Certificate of Competence is issued should be clearly defined (and may be based on standards used in other industries if appropriate) and accepted by the aerodrome authority.
- 3.2.2 Airport authorities and employers of airside drivers should adopt agreed minimum medical fitness to drive standards. These standards should cover, as a minimum, visual acuity, colour vision and hearing.

3.3 **Airside Driving and Vehicle Permits**

- 3.3.1 The aerodrome authority should establish a system for the issue of Airside Driving Permits (ADPs) for drivers and Airside Vehicle Permits (AVPs). The system should ensure that a permit is not issued unless the individual or vehicle meets the minimum standards laid down by the aerodrome authority and that there is confidence that the minimum standards will continue to be achieved through refresher training, competence checking and audit arrangements. The scheme should also take account of the needs for identification and security. The issue of permits should be strictly controlled and recorded. Only the minimum number of vehicles necessary for the safe and efficient use of the aerodrome should be permitted airside. The issue of an Airside Permit should be an acknowledgement by the aerodrome authority that a particular vehicle or driver needs to operate on the airside of the aerodrome. Acceptance of a permit should normally include a condition that requires the holder to adhere to procedures and requirements laid down by the aerodrome authority. It should be made clear that a permit does not confer any general right of entry to airside areas by either a driver or vehicle.
- 3.3.2 Airside permits for drivers and vehicles should be issued with particular periods of validity. These may be long periods, such as a year, or shorter periods when a specific need arises. Where appropriate, permits should contain clear information about the particular area(s) for which they are valid; this is particularly important in the case of short term permits. Permits may also specify limited or specific entry point(s).
- 3.3.3 Permits should be issued subject to a declaration by the applicant that all details provided are accurate and in order.
- 3.3.4 Permits should be issued only for specified drivers and vehicles. They should never be transferable between company operators, vehicles or drivers.
- 3.3.5 The aerodrome authority should set out the circumstances in which a permit will cease to be valid and must be surrendered for cancellation. Such circumstances may include:
- a) Cessation of the purpose for which the permit was issued;
 - b) Change of vehicle ownership;
 - c) Disposal of a vehicle;
 - d) Change of the holder's employer;
 - e) Loss of Driving Licence for offences under the Road Traffic Acts;
 - f) Any defacing, alteration, or misuse of a permit;
 - g) Proof of disregard of Airport Traffic Rules;

h) Any use of a permit in relation to a customs or immigration offence.

3.3.6 A model guidance document that may be suitable for use by an Aerodrome Authority dealing with Airside Driving Permits is included at Appendix A to this Chapter.

3.3.7 A model Safety Instruction that may be suitable for issue by an Aerodrome Authority dealing with Airside Vehicle Permits is included at Appendix B to this Chapter.

3.4 **Airside Driving – Training and Testing Requirements**

3.4.1 Every aerodrome authority should establish a training and competence checking programme for all applicants for ADPs. The length and complexity of the programme will depend on a number of factors such as the size or complexity of the airport, the level of traffic and the areas in which the driver will be permitted to operate.

3.4.2 The aerodrome authority should also establish a programme of periodic refresher training and competence checking to ensure that the specified standards (and any changes to them) continue to be achieved.

3.4.3 As mentioned earlier, the aerodrome authority may delegate these functions to vehicle operators or other parties, but in such circumstances the arrangements must be clearly defined and subject to periodic audit by the aerodrome authority.

3.5 **Airside Vehicles – Standards**

3.5.1 Every vehicle operating in airside areas should have an individual Airside Vehicle Permit. This must be displayed on the vehicle at all times when it is operating airside.

3.5.2 The aerodrome authority should establish minimum standards for vehicles operating in airside areas. These standards should ensure that the vehicle is fully fit for its intended use and that its condition is such that it will not endanger vehicle users, other vehicles, pedestrians, aircraft or property. Airside vehicle permits should not be issued to any vehicle which cannot meet the specified standards.

3.5.3 Before a Permit is issued a vehicle should be inspected by a competent person. Periodic inspections should be conducted thereafter to ensure that it continues to meet the minimum standards. An inspection should also be conducted if information or reports indicate that a particular vehicle may not be meeting the specified standards.

3.5.4 Model Proformae that may be suitable for use by an Aerodrome Authority dealing with Airside Vehicle Inspection Requirements is included at Appendix C to this Chapter.

3.5.5 All vehicles should normally be required to meet the requirements appropriate for the grant of a Department for Transport Test Certificate. In some exceptional circumstances this requirement could be waived, for example in respect of sidelights and headlights at an airport where operations at night or in conditions of poor visibility do not take place.

3.5.6 The AVP displayed on a vehicle must include a clear identification and details of any limitations imposed. Additionally, vehicles should be readily identifiable by their livery or by the prominent display of the vehicle operator's name.

3.5.7 The aerodrome authority must ensure operators are aware of requirements for the maximum height, width and breadth of vehicles for airside operations or for operation within specific areas. Height is particularly significant where airside bridges exist, and should be displayed in the driver's cab. It may be necessary for the aerodrome authority to specify minimum manoeuvrability standards. It is important that companies operating vehicles airside ensure that their drivers are fully aware of any limitations imposed by the manoeuvrability or size of particular vehicles.

- 3.5.8 Because of the serious nature of damage to aircraft and their powerplants caused by foreign objects it is essential that all practical steps are taken to minimise the risk of such damage from vehicle operation. The aerodrome operator must ensure that all vehicle operators are aware of the need for strict control of the security of loads and vehicle equipment. This is particularly important in respect of items such as fuel tank caps and hub caps, the loss of which is not particularly significant during normal road operations and the standards set by the aerodrome authority may include a requirement that such items are secured in such a way as to ensure that they cannot become unintentionally detached from the vehicle.
- 3.5.9 Vehicles holding AVPs should normally be equipped with flashing yellow obstruction lights of the specification published CAP 168 Licensing of Aerodromes.

NOTE: Additional lighting requirements apply to vehicle trailers.

3.6 **Airside Vehicles – Insurance**

- 3.6.1 AVPs should be granted only to vehicles that are properly insured. The aerodrome authority should publish vehicle insurance requirements appropriate to the needs of the particular aerodrome. The following conditions should be considered as suitable for general application:
- a) The aerodrome authority should normally require permit holders (i.e. their employing company) to carry adequate insurance to cover all actions, claims, costs and demands in respect of any loss, damage, or injury to property or persons (including fatal injuries), which may be made against them or their servants, agents or contractors in connection with the use of vehicles on the airside;
 - b) The policy or policies of insurance must remain in full force and effect during the period of validity of the Airside Vehicle Permit. The sum insured must be adequate to cover any potential liability in respect of the actions at sub-para (a) above;
 - c) The aerodrome authority should require the submission of documentary evidence of insurance, including the original policy document.
- 3.6.2 In the case of contractors working on behalf of the aerodrome authority it may be necessary for special arrangements to be made whereby the authority takes partial responsibility for insurance.

3.7 **Airside Vehicle and Driver Identification**

- 3.7.1 In the interests of security it is essential that all drivers and vehicles can be identified quickly and positively. Airport Driving Permits should carry a photograph of the holder. The aerodrome authority should issue instructions specifying the circumstances under which the permit must be produced on demand, and to whom.
- 3.7.2 When issuing an Airside Vehicle Permit, the aerodrome authority must set out the external markings or livery to be shown and the circumstances in which vehicles are to display permits when operating in airside areas.

3.8 **Vehicle Operating Rules**

- 3.8.1 The following paragraphs set out definitions and operating rules, which have proved to be satisfactory over many years of operation at aerodromes in the United Kingdom. While local operating conditions will determine exact procedures at individual aerodromes it is recommended that this material be incorporated in a Code of Practice for airside rules at all aerodromes.

- 3.8.2 The following colours should be used to distinguish between ground surface markings used by aircraft and those applicable to the movement and control of vehicles and equipment:

YELLOW: Markings for the guidance of aircraft

WHITE: Markings for the guidance of vehicles and equipment.

- 3.8.3 The boundary between the apron and the manoeuvring area should be indicated by a continuous double white line. Entry into and movement between these areas should be strictly controlled. Apart from pushback vehicles and crews, no vehicle should normally enter the manoeuvring area other than at designated vehicle crossing points unless the vehicle driver is in radio contact with air traffic control and has been cleared to enter the manoeuvring area.

- 3.8.4 No markings or signage of any sort should be permitted in the airside area without the express permission and approval of the aerodrome authority.

3.9 **Traffic Rules**

3.9.1 **General**

- a) The aerodrome authority should determine speed limits applicable to the airside area. Different limits may be applied to sections of roadway subject to local conditions. This information should be published and signs displayed as appropriate;
- b) On the airside road system vehicles should always keep to the left when passing an approaching vehicle, particularly to avoid confusion where there are no road markings. On apron areas different rules may be promulgated;
- c) No vehicle should be left unattended anywhere on the airside area with its engine running. This is to prevent risks such as overheating and consequent fire in the vicinity of aircraft and uncontrolled or unauthorised vehicle movement;
- d) Vehicles should remain in the airside area only long enough to conduct their legitimate business;
- e) To ensure that no object is dropped on the apron or manoeuvring area, all doors and shutters on vehicles must be closed while the vehicle is moving in the airside area. All loads and equipment, and all parts of the vehicle must be properly secured before a vehicle enters the apron or manoeuvring area. Objects dropped in the movement area can cause serious hazards to aircraft and personnel;
- f) Obstruction lights meeting the requirements of CAP 168 must be displayed at all times by vehicles operating on the manoeuvring area. Unless there are specific instructions to the contrary, dipped headlights should always be used in conditions of darkness and reduced visibility;
- g) All parking restrictions must be strictly observed;
- h) Vehicle drivers should follow designated routes, giving way, where appropriate, to routes provided for pedestrians and aircraft.

3.9.2 In relation to aircraft and stands,

- a) Vehicles must not be driven across aircraft stands, unless they are directly involved in the operation of the aircraft using or about to use the stand;
- b) Vehicles must give way to aircraft at all times;
- c) When aircraft engines are running, vehicle drivers must ensure that they stay well clear of areas behind the aircraft where slipstream and jet efflux may cause

damage or danger to the vehicle or its occupants. The minimum safe distance should be determined (usually by the aerodrome authority) and promulgated to all vehicle drivers;

- d) Vehicles must not be driven in reverse on the manoeuvring area or apron unless directly engaged in aircraft manoeuvring or servicing. When reverse movement is essential, guidance should be provided to the driver by a person outside the vehicle or other means. The fitting of reversing alarms and CCTV cameras should be considered as part of risk management of reversing operations;
- e) Vehicles must remain at least one metre away from any part of an aircraft unless they are engaged in a task that specifically requires them to operate closer to the aircraft.

3.10 **Control**

- 3.10.1 Control of vehicles on the manoeuvring area is normally the responsibility of Air Traffic Control. On apron areas, control of taxiing aircraft and aircraft under tow is the responsibility of Air Traffic Control but the control of vehicles is subject to rules and instructions issued by the aerodrome authority.
- 3.10.2 Irrespective of any clearance or instruction issued by Air Traffic Control, drivers of vehicles and of vehicles towing aircraft are responsible for ensuring that their vehicle (and any part under tow) do not collide with any other vehicle, aircraft, building or obstruction.
- 3.10.3 Control posts should be established at all entry points to the airside area. These may be staffed or may be controlled by traffic lights or light signals. Where local conditions permit, some entry points and taxiway crossing points may be designated for use without prior clearance by particular classes of vehicle holding AVPs.
- 3.10.4 In all cases, signs displayed at airside area entry points, and at crossing points within the area, must give adequate information to drivers about the procedure to be followed for movement into and within the airside area. Signs should describe any relevant control methods, such as traffic lights or signal lamps. Uncontrolled crossings should be clearly marked as such, and the conditions of use displayed. Particular attention should be given to the need for the clear statement of prohibition of entry to airside areas by unauthorised pedestrians.
- 3.10.5 The aerodrome authority should issue specific instructions about the classes of vehicle permitted to access, subject to the issue of a clearance by Air Traffic Control, the Movement Area (including active runways). The conditions for entering or crossing active runways must be clearly set out in a document published by the aerodrome authority and signed by the relevant vehicle operators and drivers.

3.11 **Operations at Night and in Poor Visibility**

- 3.11.1 The aerodrome authority should promulgate instructions dealing with vehicle operation at night and in conditions of poor visibility.
- 3.11.2 Instructions for operations at night should include descriptions of the airport lighting, including that which is displayed in areas that are not normally used by vehicles, and the lighting required on vehicles.
- 3.11.3 All trailers operating at night should be required to display two red rear lights. Trailers over 2.46m (8ft) in length should be required to have side red or amber reflectors at or near each end.
- 3.11.4 Special facilities for the operation of aircraft in conditions of reduced visibility are provided in accordance with the requirements of the UK AIP and CAP 168. Airport authorities must ensure that all drivers are aware of the meaning of facilities such as

Runway Guard Lights where these are provided, and of the significance of ILS Protection Areas. Access to the manoeuvring area in conditions of reduced visibility should be limited to experienced and suitably trained drivers and permitted only in exceptional circumstances.

3.11.5 As a general rule, Low Visibility Procedures instituted by the aerodrome authority should include the following procedures for vehicle control:

- a) Check that all entry points into the movement area are either brought under positive control or closed;
- b) Check that any guard lights or holding point board lights required under operational procedures are switched on;
- c) Warn or remove all working parties operating vehicles as necessary;
- d) Ensure that all apron and taxiway crossings are under positive control;

It is important that communication of the introduction and cancellation of Low Visibility Procedures is fast and effective.

NOTE: Full details of the general requirements for Low Visibility Procedures are included in CAP 168. Site-specific Low Visibility Procedures are included in the relevant Aerodrome Manual and should be reflected in the procedures of all companies that are permitted to operate vehicles in airside areas.

3.12 **Radio-Telephony (R/T) Equipment and Mobile Telephones**

- 3.12.1 When operating on certain parts of the airport it will be necessary to use radiotelephony or mobile telephone communications equipment. This may introduce additional risks whilst driving and vehicle operators must ensure that the use of such equipment does not distract the driver from the primary task of driving the vehicle.
- 3.12.2 Drivers of vehicles requiring to cross or enter active runways and taxiways (except at designated uncontrolled taxiway crossing points) must normally be in two-way communication with Air Traffic Control and must comply with any clearance issued to them.
- 3.12.3 With regard to other vehicles, the aerodrome authority should decide the basis on which R/T equipment is provided and used. In some cases a listening watch may be required of vehicles on certain parts of the movement area. In other cases vehicles may be required only to carry R/T equipment to satisfy the need of the Company Operator. The procedures for use of R/T equipment must be clearly promulgated by the aerodrome authority.
- 3.12.4 It is the responsibility of the holder of a vehicle radio (Special Mobile) station licence to ensure that anyone using the station has been trained and is competent to do so. Any users who are to communicate with Air Traffic Control or to transmit on any frequency used by aircraft must be tested under arrangements agreed between the aerodrome authority and the agency providing the Air Traffic Control service at the aerodrome. Communications between vehicles and Air Traffic Control demand the same standard of efficiency as aircraft communications. Appropriate R/T phraseology is described in CAP 413 Radiotelephony Manual and must be used for R/T communications between vehicle drivers and ATC.
- 3.12.5 The aerodrome authority should establish a system of allocating R/T callsigns to be used by vehicles so that the potential for confusion between vehicles and, where relevant, between vehicles and aircraft, is minimised. This is particularly important at aerodromes where the R/T frequency used by vehicles is the same as that used by aircraft or where the R/T frequency used by vehicles is re-broadcast on the R/T frequency used by aircraft.

- 3.12.6 In the interests of safety it is essential that Air Traffic Control is made aware of all radio facilities being used at the Airport, whether or not these facilities are used for communication with Air Traffic Control.

3.13 **Vehicle Accident Reporting Procedures**

- 3.13.1 Every aerodrome authority should publish rules for the reporting of accidents involving vehicles operating on the airside.
- 3.13.2 Under the provisions of the Civil Aviation (Investigation of Accidents) Regulations, aircraft operators have responsibilities for the reporting of certain accidents involving damage to aircraft.
- 3.13.3 Under the provisions of the Civil Aviation Authority's Mandatory Occurrence Reporting (MOR) Scheme and Directive 2002/42/EC of the European Parliament and of the Council of 13 June 2003, aerodrome licensees and managers, and certain other classes of persons, are required to report occurrences and defects which could endanger aircraft or their occupants.
- 3.13.4 There is, therefore, a requirement under legislation for the reporting of accidents and incidents where vehicles damage or otherwise cause danger to aircraft. However, the legal requirements are concerned only with the furnishing of reports to the Chief Inspector of Air Accidents at the Department for Transport (DfT) Air Accidents Investigation Branch and the Civil Aviation Authority. Because the legal requirements do not cover all vehicle events it is essential that every aerodrome authority provides its own scheme for the reporting of airside vehicle accidents. The scheme should cover the reporting of accidents between vehicles, vehicles and aircraft, vehicles and equipment or buildings, and vehicles and pedestrians. Records of occurrences should be kept for at least three years. They should be reviewed regularly to establish whether any steps could be taken to eliminate the causes of accidents in the airside area.
- 3.13.5 If a person has been injured, there may be legislative requirements (under RIDDOR, for example) for the injury to be reported to the relevant health and safety enforcing authority. At most airports this will be the local office of the Health and Safety Executive, although at some airports, it may be the Environmental Health Office of the local Authority or Council. If the employee has suffered a major injury, the accident should be reported without delay, by telephone.
- 3.13.6 A model Safety Instruction that may be suitable for use by an aerodrome authority dealing with Accident Reporting are included at Appendix D to this Chapter.

4 **Training**

Examples of the topics that should be covered by airside driving training are shown in Appendix E to this Chapter. General training for safety in the airside environment is discussed in Chapter 5.

5 **The Monitoring of Standards**

- 5.1 The aerodrome authority should establish procedures for the monitoring and assessment of airside vehicle operating standards.
- 5.2 These procedures should include a review of:
- a) Any increase/decrease in the number of valid Airside Vehicle Permits and the reasons for the change. An assessment of the impact on overall airside safety

should be conducted if the number of vehicles operating in airside areas changes significantly;

- b) Any reports of defective operation received from aircraft operators or from Air Traffic Control;
- c) The number of accidents and incidents. Where practical, the severity of the events should be assessed in order to assist in monitoring trends;
- d) The functioning of training schemes;
- e) The function of communication and delegation arrangements;
- f) Security;
- g) Any other matters contributing to the promotion of airside safety.

6 Performance Management

- 6.1 The aerodrome authority should publish any penalties it has established for non-compliance with the rules and instructions for the use of vehicles on the airside. These may include temporary or permanent exclusion from the airside area of individuals, particular vehicles, or group of vehicle controlled by a specified vehicle operator.
- 6.2 In the interests of natural justice it will be important for any penalty system to include an appeal procedure. However, this should not prejudice the immediate exclusion of a particular individual or vehicle where in the opinion of the aerodrome authority this is necessary in the interests of safety.
- 6.3 Safety Performance Management and Measurement is dealt with in more detail in Chapter 6.

7 Operation of Vehicles on the Airside

A model Safety Instruction that may be suitable for use by an aerodrome authority dealing with the Operation of Vehicles on the Airside is included at Appendix F to this Chapter.

Appendix A Airside Driving Permits

Important note: This Appendix represents model guidance that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

MODEL GUIDANCE DOCUMENT FOR OBTAINING AIRSIDE DRIVING PERMITS

NOTE: This guidance is issued by Manpool Airport for use by companies with drivers authorised to operate in airside areas. It sets out the general procedure and standards applied for the issue of Manpool Airport Airside Driving Permits.

Introduction

1 Legal Duties Relating to Health & Safety at Work.

- 1.1 The main duties in respect of health and safety of people at work (including airside) are stated in the Health and Safety at Work Act 1974. This may be summarised as follows.

EVERY EMPLOYER HAS A DUTY TO ENSURE, SO FAR AS IS REASONABLY PRACTICABLE, THE HEALTH AND SAFETY OF ANY INDIVIDUAL WHO MIGHT BE AFFECTED BY ANY WORK ACTIVITY WITHIN THE CONTROL OF THE EMPLOYER.

EVERY EMPLOYEE HAS A DUTY TO TAKE REASONABLE CARE FOR THE HEALTH AND SAFETY OF HIM/HER SELF AND OTHER PERSONS WHO MIGHT BE AFFECTED BY HIS/HER ACTS AND OMISSIONS AT WORK.

- 1.2 Basic safety awareness training should be regarded as essential to any employer with staff operating on the ramp. Failure to provide this means the employer is in breach of his statutory duty.

2 Driving Licences

- 2.1 Prior to commencement of any training every driver must be in possession of a full UK Driving Licence (i.e. not provisional), entitling the holder to drive a motor vehicle on the Public Highway.

The driver must also be in possession of a Permanent ID pass for the aerodrome, to cover all areas they may be required to drive in.

In the case of heavy or specialist vehicles, any driver employed after 1st April 1994 must hold the category of LGV or PCV licence which would apply to that vehicle if driven on the public road. Any driver employed on or before 31st March 1994 must hold a Certificate of Competence issued by the company concerned. The Certificate of Competence should only be issued if the driver meets equivalent standards to those required for the issue of the relevant LGV or PCV licence.

3 Health Standards

3.1 General Health

All drivers should be in good general health and medically screened on induction. This examination should include eyesight, colour vision and hearing. The guidance documents below illustrate the normal minimum acceptable standard:

At a Glance Guide to current Medical Standards of Fitness to drive category 2 (Sept '91) issued by the Medical Advisory Branch of DVLA Swansea.

3.2 Eyesight

Drivers should have visual acuity, using corrective lenses if necessary, equivalent to 6/9 in the better eye and 6/12 in the other eye on the Snellen Chart.

3.3 Colour Perception

Drivers operating in airside areas must have the ability to distinguish the signal colours, Red, Green, and White. Ishihara Plates or Lantern Test, (Giles Archer and Holmes - Wright) are useful aids to colour perception.

3.4 Hearing

It is essential that drivers have the ability to hear sufficiently under adverse conditions. The ability to hear a forced whisper at six feet (2 metres) in either ear is recommended.

3.5 Monitoring

Companies employing drivers who will work in airside areas should establish a system to monitor health standards of drivers in order to ensure that they continue to meet the minimum standards.

3.6 Details of the medical standards used by individual companies and the methods used to monitor health standards must be notified to the Manpool Airport Operations Manager.

4 Airside Driver Training

4.1 Before an Airside Driving Permit will be issued by Manpool Airport, drivers must successfully complete a course of training that prepares them to drive in airside areas, ensures that they are familiar with airside driving procedures at Manpool and ensures that they are familiar with the vehicles that they are required to drive.

4.2 Airside driver training at Manpool is delegated to a number of organisations approved by Manpool Airport. Details of the training scheme used by approved training organisations must be notified to the Manpool Airport Operations Manager.

4.3 Vehicle familiarisation

4.3.1 Companies that operate vehicles in airside areas should issue drivers with a Company Driving Permit endorsed with the types of vehicles/specialist equipment that the individual is trained and authorised to drive. A Company Driving Permit should not be endorsed unless the holder has successfully completed any necessary theoretical training and demonstrated their practical competence to drive the vehicle. The Company Driving Permit is supplementary to the Manpool Airside Driving Permit that must be held by any driver operating in airside areas. In the case of complex vehicles or specialist equipment, regular refresher training and testing should be conducted in order to maintain the Company Driving Permit endorsement.

4.3.2 The HSE Publication - Workplace Transport Safety (Code HS (G) 136) is a useful guide to this subject.

4.3.3 All training, testing and Company Driving Permit endorsement is to be recorded and available for audit by Manpool Airport.

4.4 **Airside driver induction training**

4.4.1 Airside driver induction training should be carried out for all drivers new to airside driving or new to Manpool Airport. Induction training should have three distinct modules:-

- Theoretical (see para 4.5.2)
- Topography, Familiarisation, and Practice
- A Programme of Supervision and Monitoring following the Training

4.5 **Airside driver theoretical training**

4.5.1 All drivers who are required to operate in airside areas should have successfully completed a course of training covering basic airside driving techniques and procedures. Holders (or previous holders) of Airside Driving Permits issued by other aerodrome recognised as covering the same training material may be exempted from all or part of the basic theoretical training (contact the Manpool Airport Operations Manager for more information).

4.5.2 All drivers who are required to operate in airside areas at Manpool Airport should have successfully completed a course of training covering driving procedures at Manpool Airport.

NOTE: The typical content of an 'Airside Driver Training Syllabus' is shown in Appendix E to this Chapter.

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Appendix B Model Instruction for the issue of Airside Vehicle Permits

Important note: This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

1 Introduction

- 1.1 Vehicle access to the airside area at Manpool is controlled strictly by Manpool Airport Ltd, Airside Safety & Operations Department through the issue of AIRSIDE VEHICLE PERMITS under the direction of the Secretary of State for Transport and subject to the security legislation.
- 1.2 AVPs are valid for a maximum of 12 months from the date of issue.
- 1.3 All vehicles must have a valid AVP whilst airside. An AVP does not confer the right of entry and does not identify the driver or the passengers.

2 Function of an AVP

An AVP serves to identify the vehicle and its operator and is an acknowledgement by Manpool that the vehicle needs to be used in the controlled or restricted areas specified on the Permit when on official use.

3 Types of AVPs

- 3.1 There are two types of AVP issued by Manpool.
 - 3.1.1 **Annual AVP** - valid for a maximum of one year from the issue date for a specified vehicle. An Annual AVP will only be issued for vehicles needing essential access to all restricted or controlled airside apron areas and airside roads on a regular basis. It is the responsibility of the vehicle owner/operator to apply for renewal of an Annual AVP if required.
 - 3.1.2 **Short Term AVP** - valid for a specified period at the time of issue (normally 24 hours) for a specific vehicle. A Short Term AVP will be issued for access through a specified Access Gate to a specific airside area(s) for a particular purpose.

4 Display of AVP

- 4.1 An AVP must be clearly displayed on the windscreen of the vehicle (in a position that minimises the obstruction to the driver's view) while airside.
- 4.2 Emergency Services vehicles, called to an emergency or major training exercise, are exempt from the requirement to hold or display an AVP.

5 Conditions of Issue

- 5.1 A permit is issued subject to a signed "Declaration by the Applicant" indicating that the details provided are accurate and in order.
- 5.2 The permit is issued to a specific vehicle, approved for access by Manpool Airport, The pass is not transferable between vehicles, companies or persons and serves only to identify the vehicle, NOT the driver or passengers.
- 5.3 The applicant or sponsor, is responsible for returning an AVP to the Manpool Security Centre for cancellation in the following circumstances:
 - 5.3.1 When the purpose for which the pass was issued has ceased;
 - 5.3.2 When the vehicle ownership changes;
 - 5.3.3 When the vehicle is scrapped, sold or otherwise permanently ceases operation airside; or
 - 5.3.4 In the case of a sponsored vehicle, when that vehicle is no longer used by the sponsoring company, even though the pass is still valid.
- 5.4 On request by Manpool Operations Department or Security Department, Manpool Airport may cancel or request the return of an AVP if:
 - 5.4.1 The pass is defaced, altered, amended or bears markings not entered by the issuing authority;
 - 5.4.2 The pass is found on any vehicle other than that for which it was issued; or
 - 5.4.3 A pass is obtained for a privately owned vehicle purported to be company owned.

6 Acceptance of Conditions of Issue

The submission of an Application Form, duly signed, shall be regarded as acceptance of the conditions contained in this Instruction, as well as those contained in the Declaration on the Application Form.

7 Vehicle Requirements

7.1 Vehicle maintenance

The applicant or sponsoring company applying for an AVP is responsible for the safe operation and fitness of the vehicle/equipment it uses airside and is required to certify:

- 7.1.1 That the vehicle/equipment for which the pass is required has been properly inspected, maintained and serviced by an appropriately qualified within the twelve months prior to the date of application and will continue to be inspected, maintained and serviced by an appropriately qualified engineer throughout the period of validity of the pass. This is to ensure that the minimum safety and performance standard specified by Manpool Airport are maintained.
- 7.1.2 The applicant or sponsoring company will ensure that the frequency of inspections, maintenance and servicing is appropriate to the type and age of the vehicle used and in accordance with the manufacturers recommendations.
- 7.1.3 That a record of the inspection, service and maintenance of the vehicle/equipment will be made available for inspection by Manpool Airport upon request.

- 7.1.4 That only persons trained and competent to drive/operate that vehicle/equipment will drive it.
- 7.1.5 That an inspection has confirmed that the electrical and mechanical condition of the vehicle meets the standard required for the issue of an MOT certificate under the Road Traffic Act. Where appropriate, the vehicle must be maintained to the standards required to gain an MOT Certificate and a valid MOT certificate must be held by the vehicle at all times that the vehicle is used airside.

NOTE: A copy of the MOT certificate must accompany the Vehicle Airside Pass Application form for each vehicle. In the case of a vehicle/equipment that does not require an MOT certificate, the appropriate Motor Transport Vehicle (MTV) Inspection Forms, available from Operations Administration, must be completed and submitted with the application form.

- 7.2 Manpool Airport Ltd reserves the right to inspect vehicles and relevant documentation to ensure that they comply with these regulations.

7.3 **Obstacle lights**

- 7.3.1 The vehicle must be equipped with an omni-directional flashing yellow obstacle light that meets the specification set out CAP 168 Licensing of Aerodromes.
- 7.3.2 In conditions where emergency vehicles not normally based at the airport are operated on airside areas, flashing blue lights, where fitted, will be used.

7.4 **Vehicle identification and livery**

A vehicle for which a Vehicle Airside Pass is required must be in company livery. The company logo must be clearly displayed on BOTH SIDES of the vehicle (minimum size 45cm x 25cm). An exception may be made for an un-liveried vehicle with a short term Vehicle Airside Pass if it is carrying permanently installed equipment which is essential to the purpose of the visit.

7.5 **Vehicle specification.**

- 7.5.1 A vehicle or trailer should not normally exceed 3m in width. Exemption to this requirement may be granted by Manpool Airport in certain circumstances where a specific need exists.
- 7.5.2 The vehicle or trailer must be able to meet the airside height restrictions which are clearly marked by warning plates wherever headroom clearance is limited.
- 7.5.3 Any vehicle or equipment capable of elevation must be fully retracted before being driven anywhere on the airside road system.
- 7.5.4 The total overall length of a trailer train including the prime mover and couplings must not exceed 18.3 m. Subject to this maximum, the following numbers of trailers of specific categories may be drawn by one prime mover:
- Not more than four single size baggage or single LD3 trailers;
 - Not more than three double LD3 trailers;
 - Not more than three large cargo trailers;
 - Where more than one category of trailer is drawn by one tug, no more than three trailers are permitted.

7.6 **Other requirements.**

- 7.6.1 The exhaust system must be in good order.
- 7.6.2 The vehicle must be free from oil/fuel leaks.

- 7.6.3 The prime mover must be of adequate power and weight and capable of braking efficiently the prime mover itself and all trailers it is towing.
- 7.6.4 The prime mover must have front and rear lights illuminated if operating during the hours of darkness or in poor visibility.
- 7.6.5 Any vehicle or trailer over 2.46m in length must have red or amber reflectors at or near each end, clearly visible in conditions of poor visibility or in darkness. High intensity reflective sheet material or reflective paint is an acceptable alternative.
- 7.6.6 Trailers must have a proper parking brake system.
- 7.6.7 Tow bars, even when not in use for towing aircraft, must be made clearly visible when being moved from one place to another, for example with fluorescent strips.
- 7.6.8 Any load, loose baggage or freight must be securely fastened to ensure it cannot spill/fall on the aprons and airside roads.
- 7.6.9 Whatever colour scheme a vehicle or equipment is painted in, it must be made highly conspicuous to be visible from all sides.
- 7.6.10 For any vehicle or trailers, or combinations of the two, which it is essential to use and which cannot satisfy the requirements of this instruction, specific clearance must be applied for and obtained from Manpool Airport Operations Department before use on the apron or airside roads.
- 7.6.11 Consideration should be given to installing an effective fire extinguisher on vehicles that will be operating in airside areas.

8 Employer's Responsibility

- 8.1 It is the responsibility of the Employer to ensure that any employee or person who drives the Employer's vehicles on airside areas meets the following requirements.
 - 8.1.1 The driver must hold an Identity Document valid for use at Manpool Airport. The driver must be in possession of a full UK Driving Licence (i.e. not provisional), that entitles the holder to drive a motor vehicle on a public road. The driver must hold a valid Airside Driving Permit issued by or recognised by Manpool Airport. The driver must also be in possession of a company driving permit which specifies that the named person has been specifically trained and is competent to drive/operate airside the vehicles/equipment listed on the permit. Access to such training records must be made available to Manpool on request. In the case of heavy or specialist vehicles the driver must hold the appropriate category of LGV or PCV licence which would apply to that vehicle if driven on a public road.
 - 8.1.2 The driver must be familiar with and comply with the relevant requirements of all Instructions and Notices applicable airside, the Manpool Airport Byelaws, the Air Navigation Order 2005, the Rules of the Air Regulations 1996 and the Aviation Security Act 1982, as amended by the Aviation and Maritime Security Act 1990, and CAP 642 Airside Safety Management guidance.
 - 8.1.3 Periodically, Instructions and Notices are issued which regulate or amend procedures for the movement of vehicles on airside areas, or publish other requirements applicable airside. The employer must ensure that the contents of these Instructions and Notices are brought to the attention of and complied with by their employees.

9 Responsibility of Sponsors

- 9.1 An associated company may be employed by a Manpool based airline operator to provide it with a service airside in support of aircraft operations. It is necessary for the Manpool based airline operator employing such a company to sponsor applications for AVPs on its behalf. All matters connected with the issue, control, cancellation or withdrawal of AVPs will be conducted through the sponsor only, who will also be responsible for ensuring that the contents of this Instruction and any other relevant legislation and instructions are complied with as per paragraphs 9.1.2 and 9.1.3 above.
- 9.2 The airside area is also subject to the control of HM Customs and Excise. It may be necessary, on occasion, for a sponsoring company to obtain prior permission from HM Customs and Excise for a particular activity, particularly in cases of vehicles carrying freight.

10 Insurance Requirements for the Issue of an AVP

- 10.1 The following insurance requirements must be fulfilled by the applicant before an application for an AVP is made.
- 10.2 Manpool requires the holder of an AVP to carry adequate insurance covering all actions claims, costs and demands in respect of any loss, damage or injury to property or persons (including fatal injuries) which may be made against them or their servants agents or contractors, arising in connection with the use of the vehicle airside at Manpool.
- 10.3 The policy or policies of insurance must remain in full force and effect during the currency of the AVP, and the sum insured must be such a sum as is adequate to cover any potential liability in respect of the above actions, claims, and costs and must be not less than £50,000,000.
- 10.4 Applicants for an AVP are required to produce documentary evidence of the insurance cover and the original policy document or cover note must indemnify Manpool Airport.
- 10.5 The sponsoring company must certify that the sponsored companies vehicle has the above insurance cover.
- 10.6 Special arrangements apply to the insurance of vehicles owned or on hire to contractors working on behalf of Manpool Airport Ltd. The details of these arrangements are as follows.
- 10.6.1 The Contractor shall effect with insurers or underwriters a policy or policies of insurance in the joint names of the contractor and Manpool Airport Ltd.
- 10.6.2 The Contractor must produce for inspection by Manpool Airport Ltd upon request at any time the said policy or policies of insurance and the receipt for the last premium paid in respect thereof.

11 Application Procedure for the Issue of an AVP

An example of the application form for the issue of an LVP is shown at the end of this Instruction.

11.1 Annual AVP

- 11.1.1 Application forms for Annual AVPs are available from Security Centre.

- 11.1.2 Applications must be made to Manpool Security Centre using the approved forms.
- 11.1.3 Once approved, Manpool Security Centre Unit will issue the AVPs at the following times:

From 0830 until 1630 on weekdays (excluding public holidays).

NOTE: Applications for privately owned or non-operational vehicles will not be authorised.

NOTE: The issue of an AVP during the previous year carries no automatic right to re-issue.

NOTE: The issue of an AVP does not confer the right to park airside.

11.2 **Short Term AVP**

- 11.2.1 Application forms for the Short Term AVPs can be obtained from the Manpool Security Centre
- 11.2.2 Duly sponsored application forms can be taken to the Security Centre, where a Short Term AVP can be issued immediately.
- 11.2.3 Alternatively, the application form can be faxed to the Security Centre for immediate validation from any location by using the following fax number, 01234 567890. The pass must then be collected from the Security Centre.
- 11.2.4 Out of hours, passes can be obtained from the Security Office in the Terminal adjacent to the Staff Entrance.

12 **Validity of AVPs**

12.1 **Annual AVPs**

An Annual AVP becomes valid at 0001 hours on the day of issue and remains valid until 2359 hours 12 months from the date of issue.

12.2 **Short term AVPs**

A Short Term AVP will normally be valid for 24 hours from the time it is required, However, in exceptional circumstances this may be extended.

13 **Charges for AVPs**

- 13.1 The administration charges for AVPs is as follows.

- 13.1.1 Annual AVP - £X plus VAT
- 13.1.2 Short Term AVP - No Charge.

- 13.2 At present the administration charge is waived for the following:

- 13.2.1 Vehicles operated by an airline, handling agent or aircraft refuelling company and in their recognised permanently painted livery.
- 13.2.2 Vehicles owned and operated by the following;
- Manpool Airport Ltd
 - Contractors to Manpool Airport Ltd
 - HM Customs and Excise

- HM Immigration
- Manpool Police
- Diplomatic Service

14 Lost or Stolen AVPs

- 14.1 If an AVP is lost or stolen it must be reported immediately to Manpool Airport Ltd Security Department, telephone 01234 - 567890
- 14.2 The cost of a replacement AVP is £X plus VAT, and will apply to any company's lost or stolen Permit.

15 Further Requirements for the Issue of a Short Term AVP

A short term AVP will normally be issued only for a vehicle which displays a recognised company livery and is fitted with a yellow flashing obstacle light. However, exceptions may be made if the vehicle is escorted by another vehicle which meets this requirement.

16 Personnel Identity and Escorts

The issue of a Annual or Short Term AVP does not , in itself, represent permission for any individual to go airside. If the driver does not hold an Airside Driving Permit then he/she must be escorted by someone with a valid Airside Driving Permit and AVP.

The driver and any other occupant of the vehicle must be in possession of an Identity Document either permanent or restricted. If restricted, they must, at all times whilst airside, be escorted by a representative of the sponsoring company. It is the driver's responsibility to ensure that unauthorised persons are not carried in the vehicle.

17 Authorised Signatories

The application form for an AVP must be signed at the time of issue by a person from the sponsoring company who has been approved by Airside Operations.

18 Low Visibility Operations

Vehicles engaged in work on taxiways or stands, must have their routing or escort arrangements detailed in advance. On entry airside, drivers should check whether or not there are low visibility conditions or as that may impose further restrictions. Drivers of vehicles with Short term AVPs are not normally permitted to enter the manoeuvring area in low visibility conditions. (See Safety Instruction entitled Operations in Low Visibility)

19 Legal Aspects

- 19.1 It is an offence under Section 21B and 21C of the Aviation Security Act 1982, as amended by the Aviation and Marine Security Act 1990 to:

- a) Give false information either for the purposes of or in connection with an application for an AVP or in connection with continued holding of an AVP that has already been issued.
 - b) Go with or without a vehicle on to any part of the restricted airside area of the airport without permission of Manpool Airport Ltd:
- 19.2 Failure to meet the requirements of the requirements of this Guidance Document can result in the removal of the offending vehicle from the Airside Areas.

20 Illegally Parked Vehicles

The AVP will be removed from vehicles parked in direct contravention of Instructions and the Manpool Airport Byelaws. The AVP may be returned, but a administrative charge of £X may be incurred

21 Questions

Any questions concerning this instruction should be addressed, during office hours, to the Manpool Airside Operations Manager, tel: 01234 567890. At other times to the Manpool Operations Duty Manager, tel: 01234 567890.

Model Application for Vehicle Apron Pass

To: Airfield Operations Manager
 xxxxxxxx Airport xxxxxx
 xxxxxxxx xxxxxx
 xxxxxxxx
 Telephone:

To be completed by the Applicant in Block Capitals or Typewritten

- 1 **Name and private address of registered owner of vehicle** **Name and address of applicant if different from registered owner of vehicle**

 Tel No. Tel No.
- 2 **Name and address of employer of applicant** Tel No.

 Ext.
- 3 **Details of vehicle**

<u>Taxation class</u>	<u>Make</u>	<u>Model</u>	<u>Width</u> (if over 2.5m)	<u>Colour</u>	<u>Registration No.</u>	<u>Company Livery</u>
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- 4 **Detailed reasons for application**

Application for privately owned vehicles will only be authorised in exceptional circumstances.
- 5 **Name of company or body for whom service is being provided**

To be completed by Sponsor

- 6 **Sponsorship** *(To be completed by an authorised official of an airline, refuelling company, aircraft handling agent, central or local Government department or Airport on behalf of their contractor or employee).*
 I, the undersigned certify that:
 - (a) The vehicle operated by the applicant is required to enter Apron areas owing to their service to this Company and for the detailed reasons in Part 4 above.
 - (b) The driver and any other persons carried (except airline passengers) will be in possession of an approved identity document.
 - (c) I will bring the traffic and vehicle requirements as set out in the Airport Byelaws and Managing Director's Notices as modified from time to time, to the attention of all drivers who may use the vehicles for which this Pass is required.
 - (d) I will return the Pass if the applicants vehicle ceases to serve this Company/body during the period of issue.
 - (e) *The applicant/owner/this company has taken out a policy or policies of insurance as set out in para 9 overleaf.

Name of Sponsor: Tel No. Ext

Signed on behalf of sponsor:

.....

Position * delete as appropriate

For Office Use	Airport Record No.	Pass Serial No.	Date of Issue	Previous Pass No.	Date Collected	Signature of Recipient
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Declaration by the Applicant

I, the undersigned, agree that

- (1) In view of the nominal sum, if any, charged for the Pass I accept that all vehicles are admitted to and remain on the aprons and service roads on the express condition that neither the Airport nor its servants or agents shall be liable to any loss of, or damage to, the vehicle or its contents, howsoever such loss or damage may be occasioned. The Pass is the property of the Airport and is issued subject to Airport Byelaws and Regulations.
- (2) I will ensure that the driver is aware that this Pass applies to the Aprons and Airside roads only and that he should not drive on the manoeuvring area (see note below) except when specifically authorised by Airport and ATC so to do.
- (3) I will bring the traffic and vehicle requirements as set out in the Airport Byelaws and Managing Director's Instructions, as modified from time to time, to the attention of all drivers who may use the vehicle for which this Pass is required.
- (4) The Pass is valid only when exhibited upon the windscreen of the vehicle for which it is issued and that any defacement or alteration will render it invalid.
- (5) The Pass is concerned with access only to airside and does not confer the right to park in airside areas, and that a vehicle reported for parking in airside areas may have its Pass cancelled.
- (6) The Pass remains at all times the property of the Airport and will be returned to the Authority issuing office upon request, or if the vehicle is no longer required for the purposes stated in Part 4 overleaf.
- (7) The driver and any other persons carried (except airline passengers) will be in possession of an approved identity document.
- (8) The vehicle has a valid MOT certificate where applicable under the Road Traffic Act or should the vehicle require no Road Fund Licence because it will not be required to operate on roads where the Road Traffic Act applies, the vehicle has been inspected by a Motor Engineer within the past three calendar months of the date of this application and that the mechanical and electrical condition of the vehicle meets the standards required for the issue of a MOT certificate under the Road Traffic Act. All vehicles should be serviced and maintained to ensure MOT standards are complied with.
- (9) Prior to driving a vehicle on airside for which a vehicle apron pass has been issued to me there will have been taken out a policy or policies of insurance covering all actions, claims costs and demands in respect of any loss, damage or injury to property or persons (including fatal injuries) which may be made against us or any of our servants, agents or contractors, howsoever arising in connection with the use of the vehicles airside, which policies of insurance we undertake to maintain in full force and effect during the currency of the said Pass. The sum insured shall be such sum as is adequate to cover our potential liability in respect of the said actions, claims and costs and is in no event to be less than £XXX million.
- (10) Any fee charged for the Pass is not returnable upon cancellation of the Pass howsoever arising.

Signed

Name (BLOCK LETTERS)

Company

Position in Company Date

Appendix C Model Safety Instructions - Airside Vehicle, Plant and Equipment Safety Inspections

Important note: This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

INSTRUCTION ON AIRSIDE VEHICLE, PLANT AND EQUIPMENT SAFETY INSPECTIONS

AIRSIDE VEHICLE, PLANT AND EQUIPMENT SAFETY INSPECTIONS

1 Introduction

- 1.1 This instruction describes the vehicle, plant and equipment safety inspections to be conducted by airside vehicle operators and suggests procedures to ensure compliance.
- 1.2 All vehicles, plant and specialist equipment (as defined in Annex A) are required to possess an airside plate or pass. To qualify for a pass/plate a vehicle must be maintained in a similar standard to that required for the DfT (MOT) certificate for public road vehicles, including checks associated with the specialist function of the particular vehicle, plant or equipment. Evidence of a satisfactory inspection (describe in Para 4) is required at the time of issue or renewal of the plate/pass.

2 Definitions

For the purpose of this instruction:

- i) A vehicle is defined as any mechanically propelled conveyance.
- ii) Plant is defined as mechanically or electrically powered equipment
- iii) Equipment is defined as non powered equipment i.e. aircraft steps, trailers, dollies or tow-bars

3 Validity of a Vehicle, Plant or Equipment Safety Inspection

- 3.1 All airside vehicles, plant and equipment should have as an absolute minimum two full safety inspections per year, even if lightly used and irrespective of operation time or mileage. However, for the administration of this procedure, one of these safety inspections must be carried out within one month period before the date of issue or re-issue of an airside plate/pass.
- 3.2 Manpool Airport Ltd. will require evidence of defect-free safety inspections on four occasions, as follows:
 - a) On the first application for an airside plate/pass;

- b) On annual renewal of an airside plate/pass;
- c) During audit checks by Manpool, when maintenance records will be inspected;
- d) Following a vehicle related incident or accident when maintenance and safety inspection records will be inspected.

3.3 A prerequisite of the issue/re-issue of a Vehicle, Plant, Equipment Airside Plate/Pass is the production of the following:

Table 1

	Service Stamp	Safety & Serviceability Certificate	MOT Certificate
Airside Plant/Equipment – new 0-1yr	N/A	N/A	N/A
Airside plant/Equipment 1-3yrs	N/A	✓	N/A
Airside Plant/Equipment >3yrs	N/A	✓	N/A
MA personal Company vehicles 0-3yrs	✓	N/A	N/A
MA personal Company vehicles > 3	N/A	N/A	✓
Company (liveried) vehicles new 0-1yr	✓	N/A	N/A
Company (liveried) vehicles 1-3yrs	✓	N/A	N/A
Company (liveried) vehicles >3yrs	N/A	N/A	✓
Private Vehicles –new 0-1yr	✓	N/A	N/A
Private vehicles 1-3yrs	✓	N/A	N/A
Private Vehicles >3yrs	N/A	N/A	✓
EXCEPTIONS			
Company and private vehicles from Ramp Road Security Point to Facility Services/Fire Station car parks	N/A	N/A	N/A
Company and Private Vehicles from Hangar Road to Fuel Farm car parks	N/A	N/A	N/A

NOTE: Service Stamp means a certified stamp entered on to the vehicles servicing logbook

NOTE: Vehicles operating landside must comply with DfT (MOT) requirements.

NOTE: Copies of the Safety and Serviceability Certificates are at Annex B

A copy of the insurance certificate.

Minimum cover for £X is required for access to the Restricted and or Controlled Zone

Minimum cover for £X is required for access to the Lower Risk Zone

Proof of cover will be required for each vehicle. Alternatively a block policy certificate to the above levels may be lodged with the Airport Security Pass Office.

4 Providing Evidence of a Satisfactory Vehicle, Plant and Equipment Inspection

- 4.1 There are two basic means of providing acceptable evidence of a defect-free safety inspection. The first requires a copy of the current DfT certificate and the second requires the submission of a Manpool Vehicle, Plant and Equipment Safety and Serviceability Inspection Form. (Shown at Annex B).
- 4.2 Companies/organisations operating at Manpool should provide a photocopy of relevant forms to Manpool Airport Ltd. as required, always maintaining a master copy of each form for their own records.

5 Vehicle, Plant and Equipment Safety Inspections Accepted by Manpool

- 5.1 Companies/organisations operating at Manpool Airport may have their own transport servicing procedures. These companies/organisations may issue Safety and Serviceability forms for their vehicles on approval by Manpool Airport Ltd.
- 5.2 Each approved company/organisation is to nominate a vehicle inspector and a certifying stamp will be issued in that nominated inspector's name. Only Safety and Serviceability forms signed and stamped by the nominated Inspector will be accepted.

6 Apron Vehicle/Plant and Equipment Safety Audits

Manpool Airport Standards and Compliance Advisors will carry out random safety inspections on vehicles, plant and equipment in airside areas. Vehicle, plant and equipment will not be entered or inspection panels lifted without first consulting the company concerned. Companies/organisation with airside vehicle, plant and equipment will also be visited to carry out audits on safety inspections and maintenance records.

7 Diesel Emission Standards

- 7.1 Following agreement with the Airside Safety Committee and Airline Operators Committee this section details the introduction of a Non Addition Rule for airside diesel vehicles.
- 7.2 **Non Addition Rule**
- All new, replacement or additional diesel vehicle/Plant operated in airside areas must meet the Euro II emission standard for diesel engines where technically possible.
- 7.3 **Operation of the Rule**
- 7.3.1 On the first application for a permanent Airside Vehicle/Plant plate/permit, the vehicle/plant must be shown to meet Euro II standard by:
- Indicating this fact on the AVP application form, and
 - Providing evidence from the manufacturer in the form of a statement that the vehicle engine meets Euro II exhaust emission standards.
- 7.3.2 Where evidence is not provided, for example in the case of a specialist vehicle, the application will be passed to the Manpool Airport Standards and Compliance

Department for verification as to whether or not the technology exists for that vehicle type.

- 7.3.3 Where the technology is not yet available, the application will continue as normal.
- 7.3.4 Where the technology does exist, the vehicle will be refused an airside pass/plate until such times as it meets the Euro II standard.
- 7.3.5 Applicants are encouraged to achieve these standards. Advice may be sought, in advance of procurement, from Manpool Airport Motor Transport Manager, tel: ext. 1234.
- 7.3.6 Manpool Airport will carry out random spot checks of diesel emission standards on both old and new vehicles

8 Failure to Comply

- 8.1 Failure to comply with the scheme described above or audit evidence that safety inspections are not being undertaken could result in the withdrawal of the plate/permit.

PLEASE ENSURE THAT THIS INSTRUCTION IS BROUGHT TO THE ATTENTION OF ALL STAFF WHO NEED TO BE AWARE OF THE PROCEDURES

ANY QUESTIONS ARISING FROM THE ABOVE INSTRUCTION SHOULD BE REFERRED TO THE CORPORATE HEALTH AND SAFETY ADVISOR

Annex A: Vehicles, Plant and Specialist equipment

1 Standard Vehicles

All vehicles that have to comply with licensing regulations. e.g. Vehicle Excise Duty, MOT testing, Plating etc.

Cars and light commercials

Articulated Tractor Units

LGVs

HGVs

PSVs (mini buses and coaches etc.)

Agricultural vehicles

Forklift trucks

Road sweepers.

2 Specialist Vehicles

Aircraft pushback tugs

Belt loading vehicles

Main deck loaders

Pallet transporters

Major foam tenders

Runway de-icing vehicles

Snow ploughs

Snow blowers

TSUs

Airport buses over 2.5 metres wide

Freight moving tugs

Ambulifts

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Annex B: Safety and Serviceability Inspection Forms

Important note: This Appendix is produced as guidance material, to provide model proformae that may be suitable for use as the basis for development by an aerodrome of its own procedures in line with manufacturer's instructions, servicing schedules and MOT requirements. Due consideration should also be given to the particular circumstances at individual aerodromes.

The objective is to ensure that the safety and performance of all vehicles are maintained by inspections, maintenance and servicing, conducted in accordance with the manufacturers' instructions.

MANPOOL AIRPORT Ltd

SAFETY AND SERVICABILITY INSPECTION

GROUND POWER UNIT/AIRSTART UNIT

Owners Name: Fleet No:

Engineer's Name: Registration No:

Engineer's Company: MIs/Kms:

Seating Capacity Inspection Date:

Marking Code:	✓ = Serviceable	X = Defect Present	N/A = Not applicable
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Safety Inspection - Ground Power Unit/Airstart Unit			
No.	Inspection Item	TM	Code
Steering			
1	Security of wheel system for free play		
2	Security & condition of steering arms, ball joints, track rod & drag link ends		
3	Wheel bearings		
Brakes			
4	Hand brake lever, reserve travel, ear in pivot		
5	Operation of pawl & ratchet		
6	Condition & security of linkage, clevis pins & cables		
7	Security & condition of hoses, feed pipes, connections		
8	Operation of brake shoes, adjusters and expanders		
9	Linings & brakes adjustment		

Safety Inspection - Ground Power Unit/Airstart Unit (Continued)			
No.	Inspection Item	TM	Code
Suspension			
10	Springs for cracks, work leaves, loose spring clips		
11	Security & condition of holding down bolts, brackets & shock absorbers		
12	Wear in shackle pins & brushes, linkage ball joints, etc.		
Chassis			
13	Freedom from cracks & damage		
Exhaust and Fuel			
14	Security of pipes, silencer & freedom from leaks		
15	Operation/condition carburettor/diesel injectors & pump		
16	Tank, pipes & hoses for security & leaks		
Engine, Clutch, Gearbox Power Take Off			
17	Condition & security of mountings		
18	Water pump for leaks/bearing wear		
19	Freedom from oil & fuel leaks		
20	Condition of linkages, couplings & drive shaft bolts		
Body			
21	Operation of doors, hinges & locking devices, body to chassis mountings		
22	Condition & security of wings & bumpers		
Wheels, Tyres			
23	Wheel disc for fracture/damage, flanges for correct bedding & fitting		
24	Wheel studs & nuts for security, axle shaft bolts		
25	Tyres for pressure, condition of thread pattern, mating and damage		
Electrical			
26	Fan belts, condition, tension		
27	Security & condition of battery, starter & generator		
28	Security of wiring & soundness of insulation		
29	Condition & security of reflectors		
Trailer Connections			
30	Trailer tow & brake couplings for security & condition		

Safety Inspection - Ground Power Unit/Airstart Unit (Continued)			
No.	Inspection Item	TM	Code
Road/Roller Test			
31	Oil pressure, water temperature & driving conditions		
32	Operation of speedometer/tachograph		
33	Excessive smoke		
34	Check steering & brake system		
I certify that the final road test/inspection has been carried out, the job is complete/incomplete. The unit is roadworthy and serviceable.			
Signature of engineer:		Signature of owner's representative:	
Print Name:		Print Name:	Date:

MANPOOL AIRPORT Ltd**SAFETY AND SERVICEABILITY INSPECTION****POWERED VEHICLES OVER 3.5 TONNES GROSS VEHICLE WEIGHT**

Refer to goods vehicle testing manual for guidance

Owners Name: Artic/Rigid: Fleet No:
 Engineer's Name: No. of Axles: Reg No:
 Engineer's Company: Odometer reading: Date of this inspection:

Marking Code:	✓ = Serviceable	X = Defect Present	N/A = Not applicable
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Safety Inspection - Powered Vehicles Over 3.5 Tonnes Gross Vehicle Weight		
Inside Cab - Check	Code	TM
Cab floor & steps – condition – security		
Driving seat – condition – security		
Mirrors – position & surface condition		
View to front – obstruction		
Condition of glass – (screen & windows)		
Windscreen wipers & washers – operation - condition		
Speedometer – condition – illumination		
Audible warning (horn) – operation – security		
Driving controls – function – condition – obstruction		
Steering wheel – free play		
Steering wheel – security – condition		
Steering column – security – condition		
Pressure/Vacuum build up – time		
Hand levers controlling – operation – wear Mechanical braking – condition – travel		
Service brake-pedal – condition – operation		
Service brake – operation – leaks		
Hand operated brake – operation – security Control valves – condition - leaks		

Safety Inspection - Powered Vehicles Over 3.5 Tonnes Gross Vehicle Weight (Continued)		
Under/Alongside Vehicle - Check	Code	TM
Road wheels & hubs – condition – security		
Tyres – size – type		
Tyres – condition – wear – inflation		
Bumper & protective guards – condition – security		
Trailer coupling – security – operation – wear		
Wings (rear) – condition – security		
Body – security – condition		
Chassis – condition – security of components		
Electrical wiring & equipment – condition – security		
Oil leaks – extent and effect		
Fuel tank & system – security – condition		
Exhaust system – condition – security - leaks		
Suspension pins & brushes – wear – security		
Spring units, links, sub-frames – attachment		
Shock absorbers – operation – condition – security		
Stub axles & wheel bearings – condition – play		
Steering linkage – movement – condition - security		
Electrical wiring & equipment – condition – security inc. switches & batteries – operation		
2. Cab Exterior – Check	Code	TM
Bumper (front) – condition – security		
Wings (front) – condition – security		
Cab security – condition		
Cab doors inc. hinges and locks – condition		
Cab floor (underside) & steps – condition		
Mirrors – security of glass & brackets – condition		
Front lamps (side) – function – condition		
Headlamps – function – vertical aim – condition		

Safety Inspection - Powered Vehicles Over 3.5 Tonnes Gross Vehicle Weight (Continued)		
Engine Compartment – Check	Code	TM
Engine mountings – condition – security		
Oil leaks – extent & effect		
Fuel tanks & systems – condition – leaks		
Exhaust system – condition – security – leaks		
Smoke emission – opacity & colour		
Ancillary Equipment	Code	TM
Steering gear – operation – wear – security		
Power steering – operation – security – leaks		
Transmission – condition – wear – security		
Rear marking – position - condition		
Rear lamp/Fog lamps – warn. dev. - operation		
Reflectors (side & rear) – condition		
Direction indicators – position – function		
Stop lamps – position – function		
Rotating beacon - operation		
Brake – Check	Code	TM
Mechanical break components – condition – operation		
Drum linings – condition		
Brake actuators – security – leaks – corrosion – damage		
Brake systems & components		
Pipes/valves – leaks – condition – security		
Load sensing device(s) – condition - leaks		

3. Brake Performance – Test carried out YES/NO (tick box as appropriate)			
Tapley Test	☐	@	MPH
Wet Road	☐	Dry Road	☐
Laden	☐	Unladen	☐
Roller Brake Test	☐		
% Foundation Brake	% Secondary Brake	% Parking	

Details of Faults Needing Rectification	Action Taken To Rectify Faults	Done by
Note 1 On completion of Inspection, Exhaust emissions print out must be attached to the completed Inspection Sheet. I certify that the final road test/Inspection has been carried out, the job complete/incomplete. The unit is roadworthy and serviceable		
Signature of engineer:	Signature of maintenance superintendent:	Date completed:
Print name	Print name	

MANPOOL AIRPORT Ltd**SAFETY INSPECTION****PASSENGER CARRYING VEHICLES
(16 seats or more)**

Owners Name: Fleet No:.....

Engineer's Name: Registration No:

Engineer's Company:..... MIs/Kms:

Seating Capacity Inspection Date:

Marking Code:	✓ = Serviceable	X = Defect Present	N/A - Not applicable
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ALL ITEMS ARE TO BE CHECKED IN ACCORDANCE WITH THE PUBLIC SERVICE
VEHICLE INSPECTION MANUAL

Safety Inspection - Passenger Carrying Vehicles					
No.	Item	Check for	Code	TM	Comments
1	Smoke emission	Density			
2	Road wheels & hubs	Security, condition			
3	Size & type of tyre	Mis-matching			
4	Condition of tyres	Wear, damage, inflation, tread pattern			
5	Bumper bars	Security, condition			
6	Condition of wings & wheel arches	Security, condition			
7	Passenger doors	Condition, operation, legal markings			
	Driver's doors	Condition, operation, legal markings			
	Emergency exits	Condition, operation, legal markings, access			
8	Driver's accomm. & steps	Condition, security, Access			
	Demist/defrosting equipment	Operation, blockage			
	Driver's signalling window	Operation, condition			
9	Driver's seat	Condition, security, position, adjustment			

Safety Inspection - Passenger Carrying Vehicles (Continued)					
No.	Item	Check for	Code	TM	Comments
10	Security of body	Condition, security, displacement			
	Exterior of body	Condition, security			
	Access doors and flaps	Condition, security			
	Luggage compartments	Condition			
11	Interior of body & passenger entrance & exists steps/platforms	Condition, security			
	Floor traps	Condition, security			
	Passenger seating	Condition, security			
	Ventilators & opening windows	Condition, security, Operation			
	Grab rail, guard rail, barriers etc	Condition, security			
	Passenger area lighting	Condition, operation			
	Fire extinguisher	Readily available, condition			
	Parcel racks	Security, condition, danger to driver			
12	Mirrors	Presence, condition, security, adjustment			
13	View to front	Restriction			
14	Condition of glass or other transparent Material	Cleanliness, type of glass, security			
15	Windscreen wipers & washers	Condition, operation			
16	Speedometer	Operation, illumination			
17	audible warning (horn)	Operation, security, volume			
18	Driving controls	Operation, condition, security			
19	Rotating beacon	Operation, security, illumination			
20	Play at steering wheel	Extent of free play			
21	Steering wheel	Condition, security			
22	Steering column	Condition, security			
23	Pressure/vacuum warning	Operation, position, illumination			
24	Build up of pressure/ vacuum	Time taken			

Safety Inspection - Passenger Carrying Vehicles (Continued)					
No.	Item	Check for	Code	TM	Comments
25	Hand lever operating mechanical braking System	Operation, condition			
26	Service brake pedal	Condition, security			
27	Service brake operation (cab check)	Operation			
28	Hand operated brake control valves	Operation, condition, security			
29	Condition of chassis	Distortion, cracks, damage, security			
30	Electrical equipment & wiring	Condition, security, contamination, fire hazard			
31	Engine & transmission mountings	Security, condition			
32	Oil & water leaks	Health or fire hazard			
33	Fuel tanks & systems (including ancillaries)	Security, leaks, fire hazard			
34	Exhaust (including ancillaries)	Condition, security, leaks, fire hazard			
35	Suspension pins and brushes	Condition, security, wear			
36	Suspension spring units & linkages	Condition, security, alignment			
37	Attachment of spring units, linkages & subframes	Condition, security			
38	Shock absorbers	Presence, condition, security, leaks			
39	Stub axles, wheel bearings	Wear, adjustment, condition			
40	Steering linkages	Condition, security, free operation			
41	Steering gear	Condition, security, adjustment			
42	Power steering	Condition, security, adjustment, leaks			
43	Transmission	Condition, security, fouling			
44	Additional braking devices (including retarders)	Condition, security, operation			

Safety Inspection - Passenger Carrying Vehicles (Continued)					
No.	Item	Check for	Code	TM	Comments
45	Mechanical brake components	Condition, security, adjustment			
46	Brake actuators	Condition, security, adjustment			
47	Braking systems & components	Condition, security, operation, leaks, adjustment			
48	Front position lamps	Condition, operation, position			
49	Rear position lamps	Condition, operation, position			
50	Rotating beacon	Operation			
51	Reflectors	Condition, position, marking			
52	Direction indicators	Condition, operation, flash rate			
53	Aim of headlamps	Beam pattern, aim			
54	Headlamps	Condition, operation			
55	Stop lamps	Condition, operation, position, marking			
56	Additional braking devices	Condition, security, operation			

Engine Compartment – Check	Code	TM	Brake – Check	Code	TM
Engine mountings – condition – security			Mechanical brake components – condition – operation		
Oil leaks – extent & effect			Drum linings – condition		
Fuel tanks & systems – condition – leaks			Brake actuators – security – leaks – corrosion – damage		
Exhaust system – condition – security – leaks			Brake systems & components		
Smoke emission – opacity & colour			Pipes/valves – leaks – condition – security		
ANCILLARY EQUIPMENT			Load sensing device(s) – condition - leaks		

4. Brake Performance – Test carried out YES/NO (tick box as appropriate)			
Tapley Test	☐		MPH
		@	
Wet Road	☐	Dry Road	☐
Laden	☐	Unladen	☐
Roller Brake Test	☐		
% Foundation Brake		% Secondary Brake	% Parking

Details of Faults Needing Rectification	Action Taken to Rectify Faults	Done by
Note 1 On completion of Inspection, Exhaust emissions print out must be attached to the completed Inspection Sheet. I certify that the final road test/Inspection has been carried out, the job complete/incomplete. The unit is roadworthy and serviceable		
Signature of engineer:	Signature of maintenance superintendent:	Date completed:
Print name	Print name	

MANPOOL AIRPORT Ltd**SAFETY INSPECTION****SUCTION AND TRACTOR MOUNTED SWEEPERS, GRITTERS, GULLY EMPTIER AND DE-ICERS****To be used in conjunction with Inspection Sheet MVT 003 or MVT 006****Refer to vehicle testing manual for guidance**

Owners Name: MIs/Kms:

Engineer's Name: Fleet No.:

Engineer's Company: Job No.:

Registration No.: D/Bar or Semi:

Type of Equipment: Date of Inspection:

Marking Code:	✓ = Serviceable	X = Defect Present	N/A = Not applicable
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Safety Inspection - Suction and Tractor Mounted Sweepers, Gritters, Gully Emptier and De-icers				
No.	Testable Items	Code	TM	Comments
Engine Compartment				
1	Check condition and security of engine mountings			
2	Check for oil leaks			
3	Check for fuel system leaks			
4	Check condition, security and leaks on the exhaust system			
5	Check exhaust emissions and record readings			
Suction and Tractor Mounted Sweepers				
6	Check condition and connection of hoses			
7	Check condition of pump belts			
8	Check suction fan drive belts and hydraulic tensioner			
9	Check condition of lift cables and pulleys			
10	Check condition of wear plates			

Safety Inspection - Suction and Tractor Mounted Sweepers, Gritters, Gully Emptier and De-Icers (Continued)				
No.	Testable Items	Code	TM	Comments
11	Check all sealing rubbers for damage			
12	Check condition and adjustment of control cables			
13	Check condition and security of control lever mountings			
14	Check condition, security and leaks on crawler box/brush drive box			
15	Check hydraulic tank for leaks			
16	Check operation of PTO			
17	Check security of PTO drive shafts and UJs			
18	Check caster wheels and tyre condition on suction box and tyre pressure			
19	Check all linkage points on frame and drive chains to brush			
20	Check operation of bevel gearbox			
21	Check condition and tension and security of drive chains and tension springs			
22	Check brush frame indicated in maintenance manual			
23	Check brush shaft bearings for wear			
24	Check security of tractor hydraulic operating lift & ram seals for leaks			
Gritters				
25	Check condition and security of chassis/structure			
26	Check condition of hydraulic pipes			
27	Check hydraulic pipes for leaks			
28	Check condition and operation of conveyor belt			
29	Check operation and security of drive boxes			
30	Check drive shafts and bearings			
31	Check operation of feed door			

Safety Inspection - Suction and Tractor Mounted Sweepers, Gritters, Gully Emptier and De-Icers (Continued)				
No.	Testable Items	Code	TM	Comments
Gully Emptier				
32	Check operation of PTO			
33	Check security of PTO drive shaft and UJs			
34	Check operation and security of vacuum pump			
35	Check condition of breathers			
36	Check boom tensions			
37	Check condition and security of stowage bracket/straps			
38	Check condition of rear door seal and locking bolts			
39	Check operation of vacuum gauge			
De-Icer				
40	Check all pipe connection for leaks and chafing of flexible hoses			
41	Check spray booms and jets for damage			
42	Check security of boom stowage			
43	Check marker lights for operation			

ON COMPLETION OF INSPECTION, EXHAUST EMISSION PRINT OUT MUST BE ATTACHED TO COMPLETED INSPECTION SHEET

Engineer's Signature:

Date:

Supervisor's Signature:

Date:

Signature of Owner's Representative (Authorised Signatory):

.....

Print Name:

MANPOOL AIRPORT Ltd
SAFETY INSPECTION
TRAILERS

Owners Name: D/Bar or Semi: Fleet No:

 Engineer's Name: No. of Axles: Identification No:

 Engineer's Company: Date of this inspection:

Marking Code:	✓ = Serviceable	X = Defect Present	N/A = Not applicable
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ALL ITEMS ARE TO BE CHECKED IN ACCORDANCE WITH THE DfT GOODS VEHICLE TESTERS MANUAL

Safety Inspection - Trailers		
Under/Alongside Trailer – Check	Code	TM
Road wheels & hubs – condition – security		
Tyres – size & type		
Tyres – condition – wear – inflation		
Bumper & protective guards – condition – security		
Spare wheel carrier – security – condition		
Fifth wheel king pin & rubbing plate – condition – security		
Auto-coupling forecarriage – operation - wear		
Drawbar incl. attachment – condition - security		
Landing legs – security – condition - operation		
Wings – condition – security		
Body – security		
Body – condition		
Chassis – condition – security of components		
Electrical wiring & equipment – condition – security		
Oil leaks (components & ancillaries)		
Suspension pins & brushes – condition		
Suspension units – condition – leaks		

Safety Inspection - Trailers (Continued)		
Spring units, links & sub frames – attachment		
Shock absorbers – condition – security – operation		
Steering Check	Code	TM
Sub axles & wheel bearings – play - condition		
Steering linkage – play – condition – security		
Turntable – condition – security		
Brakes – Check	Code	TM
Mechanical brake components – condition - operation		
Drums & linings – condition		
Brake actuators – security – leaks – condition		
Brake systems & components inc:		
Pipes/valves – leaks – condition – security		
Load sensing device(s) – operation		
or anti-lock systems - condition		
Parking brake – operation – condition		
Markings/Reflectors – Check	Code	TM
Rear markings – condition – security		
Reflectors (side & rear)		
Ancillary Equipment	Code	TM
Note: Brake and electrical system checks require suitable power sources, e.g. a tractive unit or “slave” equipment		

Details of Faults Needing Rectification	Action Taken to Rectify Faults	Done by
Signature of engineer:	Signature of maintenance superintendent:	Date completed
Print name	Print name	

MANPOOL AIRPORT Ltd**SAFETY INSPECTION****VEHICLE MOUNTED LIFTING EQUIPMENT**

(Access Platforms - Hoists - Manlifts - Deicers - Cranes - Steps - Elevators - Towers - TSUs - Tail-lifts)

To be used in conjunction with Inspection Sheet MVT 003 or MVT006.

Owner's Name: Fleet No:.....

Engineer's Name: Registration No:

Engineer's Company:..... MIs/Kms:

Seating Capacity Type of Equipment:

Inspection Date:

Marking Code:	✓ = Serviceable	X = Defect Present	N/A = Not applicable
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Safety Inspection - Vehicle Mounted Lifting Equipment				
No.	Inspection Item	TM	Code	Comment
1	Check structure for corrosion and damage			
2	Check security and condition of all attached mountings and fixings			
3	Check stabilisers, jacks, legs and supports for security condition and leaks			
4	Check interlocks for correct operation			
5	Check tracks, runners and rollers for wear, damage and security			
6	Check platform for corrosion and damage			
7	Check condition and security of toe plates, guards, handrails and grab handles			
8	Check all hinges, torsion bars and catches			
9	Check all electrical controls and switches			
10	Check audible warning system			
11	Check electrical wiring			

Safety Inspection - Vehicle Mounted Lifting Equipment (Continued)				
No.	Inspection Item	TM	Code	Comment
12	Check power unit			
13	Check hydraulic controls			
14	Check hydraulic pump, pipework, hoses, fluid level for damage, leaks, routing and security			
15	Check hydraulic power rams			
16	Check track stops/ram stops			
17	Check wire ropes, chains, hooks and links			
18	Check pulleys and sprockets			
19	Check fail-safe devices and limit switches			
20	Check load jibs, masts, gantry, lifting arms and booms			
21	Check pivot pins and locking devices etc.			
22	Check all markings and safety signs are in place and are legible			
23	Check emergency lowering system			
24	Check fluid spray system for leaks and damage			
25	Check all pipe and flexible connection for leaks and chafing			
Auxiliary Engine (Continued)				
26	Check condition and security of engine mounts			
27	Check for oil leaks			
28	Check fuel system for leaks			
29	Check condition, security and leaks on exhaust system			
30	Check exhaust emission levels			

LOAD TEST RESULTS

CREEP IN 10 MINS: IMPOSED LOAD:
 kg/LBS:

It is strongly recommended that the following tests and certifications be carried out on a twelve-month basis:

No.	Inspection Item	TM	Code	Comment
1	Relief valve(s) settings			
2	Pressure switch(es) settings			
3	Pipe failure safety circuit			
4	Stabiliser non-return valves			
5	Main cylinder condition (corrosion - leaks)			
6	Pilot check valve			
7	Stabiliser cylinder condition (corrosion – leaks)			
8	Emergency hand pump operation			
9	Hydraulic oil condition			
10	General condition of system			
11	Scissor gear condition			
12	Pin and bearing condition			
13	General structure condition			
14	Electrical wiring			
15	All safety limit switches			
16	Toe plates, guards and hand rails			
17	Legal and advisory markings			

A recognised Test certificate must be affixed to the Inspection form on completion.

Engineer's Signature;..... Date:

I certify that the above equipment complies with all safety and functional tests and is safe to use.

Supervisor's Signature:..... Date:

Signature of owner/representative (Authorised Signature);

.....

MANPOOL AIRPORT Ltd
SAFETY INSPECTION CARS, VANS & LIGHT VEHICLES
UNDER 3.5 TONNES GROSS VEHICLE WEIGHT
(including mini-buses 15 seats or less)
REFER TO VEHICLE TESTING MANUAL FOR GUIDANCE

Owners Name: Fleet No:.....
 Engineer's Name: Reg No:
 Engineer's Company:..... Odometer reading:.....
 Inspection Date: Type of Equipment

Marking Code:	✓ = Serviceable	X = Defect Present	N/A = Not applicable
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Safety Inspection - Cars, Vans & Light Vehicles Under 3.5 Tonnes Gross Vehicle Weight			
No.	Inspection Item	TM	Code
Lighting Equipment			
1	Front and rear lamps		
2	Headlamps		
3	Headlamp aim		
4	Stop lamps		
5	Rear reflectors		
6	Direction indicators & hazard lamps		
Steering and Suspension			
7	Steering controls		
8	Steering mechanism & linkages		
9	Power Steering		
10	Transmission shafts		
11	Wheel bearings		
12	Front suspension		
13	Rear suspension		
14	Shock absorbers		
15	Stub axle assemblies		

Safety Inspection - Cars, Vans & Light Vehicles Under 3.5 Tonnes Gross Vehicle Weight (Continued)			
No.	Inspection Item	TM	Code
Brakes			
16	Condition of service brake system		
17	Condition of parking brake system		
18	Service brake performance		
19	Parking brake performance		
20	Hand operated brake control valves		
21	Anti-locking braking system		
22	Mechanical brake components		
23	Hydraulic air and vacuum systems		
Tyres and Wheels			
24	Tyre Type		
25	Tyre Condition		
26	Road Wheels		
27	Tyre load/speed rating (class 7 & V11)		
28	Tyre size and ply rating		
Seat Belts			
29	Security of mounting		
30	Condition of belts		
31	Operation		
General			
32	Driver view of road (glass)		
33	Audible warning (horn)		
34	Exhaust system		
35	General condition of vehicle		
36	Mirrors		
37	Fuel system/fuel tank cap		

Safety Inspection - Cars, Vans & Light Vehicles Under 3.5 Tonnes Gross Vehicle Weight (Continued)			
No.	Inspection Item	TM	Code
38	Registration plates and VIN details		
39	Exhaust emissions		

Brake Performance – Test carried out YES/NO (tick box as appropriate)			
Tapley Test	☐		MPH
		@	
Wet Road	☐	Dry Road	☐
Laden	☐	Unladen	☐
Roller Brake Test	☐		
% Foundation Brake	% Secondary Brake	% Parking	

On completion of inspection, exhaust emission print out must be attached to completed Service sheet.

Engineer's Signature;..... Date:

I certify that the final road test/inspection has been carried out, the job is complete/incomplete. The unit is roadworthy and serviceable.

Supervisor's Signature:..... Date:

Signature of owner/representative (Authorised Signature);

.....

Print name:

Appendix D Model Safety Instruction - Airside Accident/ Incident Reporting and Investigation Procedures

Important note: This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

1 Introduction

- 1.1 One of the prime contributory factors for the establishment and maintenance of effective health and safety discipline is an open and honest accident/incident reporting scheme
- 1.2 It is the responsibility of everyone employed at Manpool Airport to report any circumstances affecting health and safety.
- 1.3 An accident or Near Miss incident can indicate that there is a failure within safety programmes or procedures. It is therefore important that all accidents or near miss incidents are reported and investigated. The purpose of this Airport Safety Instruction is to ensure that everyone working or operating at the airport is aware of Manpool Airport's mandatory requirements for the reporting of accidents or incidents.
- 1.4 This reporting procedure is in addition to any required by employers or the Airport's Emergency Orders. It does not absolve any person from their responsibilities for any reporting procedure required by Statute or Regulation (for example, reports to the HSE under RIDDOR).
- 1.5 Everyone is required to be familiar with this Instruction and their own company procedures. Failure to comply with these procedures may render the individual liable to prosecution and/or invalidate insurance cover.

2 Initial Reporting Procedures

- 2.1 Accidents must be reported immediately by the vehicle driver, airbridge, plant or equipment operator and any other persons involved. It may be that those involved may be incapacitated because of an accident, in this case any witness to the accident should carry out the initial reporting procedure. The report is to be made to the Airport Information in the following way:

From telephones on the airport exchange dial Ext. XXXX. Emergency telephones connected to the airport exchange are provided at a number of locations.
- 2.2 The following details should be given:
 - a) Name and ID number
 - b) Telephone Number

- c) Location
 - d) Nature of the accident/incident
 - e) Any injuries/damage
 - f) Emergency services required
- 2.3 On receipt of the information the switchboard operator is to inform the relevant people
- 2.4 The scene of the accident/incident should be isolated and the vehicles, plant and equipment involved in the accident/incident should not normally be moved until the police or Manpool Airport investigator is in attendance. However, if in the judgement of the senior person present or the Officer in Charge of the Fire Service their removal is necessary in the interests of safety or to effect a rescue, this may be done. The scene should preferably be photographed before being disturbed, by digital camera if possible.

3 Accident/Incident Investigation

- 3.1 The primary purpose of any accident investigation should be to gather information and evidence in order that the facts can be determined with a view to preventing recurrence. It should not have as its primary objective, the determination of a 'Liability'.
- 3.2 All accidents, including 'Near Misses' and minor first aid events, should be investigated by a departmental manager/supervisor. The fact that no injury or damage, or only minor injury or damage has occurred on a particular occasion does not mean that a serious injury/damage potential does not exist for the future. The seriousness of an accident is only a matter of degree; a small cut to a finger on a particular occasion might, if the circumstances were changed slightly, have resulted in the loss of a finger or hand.
- 3.3 On completion of the initial investigation, the manager/supervisor carrying out the investigation is to complete Form ARF1/00 (see annex A) and forward the completed form to the Health and Safety Section, Airport Standards and Compliance Department.
- 3.4 In addition to Form ARF1/00, all accidents/dangerous occurrences which fall under "The Reporting of Injuries, Diseases and Dangerous Occurrences Regulation 1995" must be notified to the Health and Safety Section, Airport Standards and Compliance Department and a copy of the completed RIDDOR Report Form F2508 forwarded to the Health and Safety Section.

4 Near Miss Accidents/Incidents

- 4.1 A 'Near Miss' is defined as an unplanned and unforeseeable event that could have resulted, but did not result in personal injury, property damage or other form of loss.
- 4.2 It is essential that all Near Misses are reported and action taken in terms of investigation and analysis, so that appropriate remedial action can be taken on the philosophy that "Yesterdays near miss could be tomorrow's serious accident"
- 4.3 Near Miss accident/incidents are to be reported on Form ARF2/00 (See Annex A) and the completed forms forwarded to the Health and Safety Section, Standards and Compliance department. The reports can be made anonymously.

5 Report of a Hazard or Unsafe Condition

- 5.1 A "Hazard" is something with a potential to cause injury/harm or loss. An important adjunct to all form of health and safety monitoring and accident prevention is the operation of an effective hazard reporting system.
- 5.2 Form ARF3/00 (Report of a Hazard or Unsafe Condition) (See annex A) is to be made available to all staff working at the airport. The report can be made anonymously. Completed forms should be forwarded to the Health and Safety Section, Airport Standards and Compliance Department, via the company/department concerned.

PLEASE ENSURE THAT THIS INSTRUCTION IS BROUGHT TO THE ATTENTION OF ALL STAFF WHO NEED TO BE AWARE OF THE PROCEDURES

ANY QUESTIONS ARISING FROM THE ABOVE INSTRUCTION SHOULD BE REFERRED TO THE CORPORATE HEALTH AND SAFETY ADVISOR

INTENTIONALLY LEFT BLANK

Annex A

Report Form ARF1/00 Report of an Incident Involving Injury or Property Damage

Report Form ARF2/00 Near Miss Report

Report Form ARF3/00 Report of a Hazard or Unsafe Condition

MANPOOL AIRPORT Ltd		REPORT OF AN INCIDENT INVOLVING INJURY OR PROPERTY DAMAGE FORM ARF1/00						
To be completed by all airside operators and companies								
Time of Incident		Date		Location				
Company details								
Company				Type of Business				
Address				Tel. No.				
				Fax				
				E-mail				
Details of persons involved in the incident								
First name			Surname		Age		DOB	
ID No. if known		Job title			Employing company			
Dept.				Length of Time with the Company		Date joined company		
Details of the incident								
Use other side of sheet if necessary								

MANPOOL AIRPORT Ltd		REPORT OF AN INCIDENT INVOLVING INJURY OR PROPERTY DAMAGE FORM ARF1/00					
Details of any injuries							
Use other side of sheet if necessary							
Equipment/plant/property details							
Type of equipment/plant/property							
Equipment/plant/ structure owner		Fleet/ Serial No.		Date of Last Inspection/ servicing			
Damage Sustained by Equipment/plant/property							
Use other side of sheet if necessary							
Witness Details							
Witness 1				Witness 2			
First Name		Surname		First Name		Surname	
Address				Address			
Post Code				Post Code			
Tel:				Tel:			
Statement taken	YES ☐	NO ☐		Statement taken	YES ☐	NO ☐	
Name Of Person Making Report				Signature		Date	
COMPLETED FORM TO BE SENT TO THE HEALTH AND SAFETY SECTION, AIRPORT STANDARDS AND COMPLIANCE DEPARTMENT							

MANPOOL AIRPORT Ltd			NEAR MISS REPORT Form ARF2/00		
Area: i.e. airside/terminal			Location		
Name (Optional)				Date of Near Miss	
Company				Time of Near Miss	
Description of Near Miss					
What Caused The Near Miss To Occur?					
Evaluation of the Potential of the Near Miss					
Severity Potential			Probable Recurrence Rate		
Major	Serious	Minor	Frequent	Occasional	Rare
Action Already Taken					
Recommendations					
Date Action Required By			By Whom		
Manager			Signature		
Completed Forms to be Sent to the Health and Safety Section, Airport Standards and Compliance Department				Date	

MANPOOL AIRPORT Ltd			REPORT OF A HAZARD OR UNSAFE CONDITION Form ARF3/00								
Name of Person Reporting Hazard (Optional)											
Date Of Observation				Time							
Location of Hazard or Unsafe Condition											
Hazard or Unsafe Condition Description											
Injury Sustained	Yes		If Yes Please Complete Form ARF1/00		No		Damage Caused	Yes		No	
Weather Condition	Wet		Dry		Icy						
Visibility	Good		Poor								
Has Your Employer Been Informed	Yes		No								
Remedial Action Taken by Company/department											
Name And Employing Company of Manager Submitting The Report											
Completed Forms to be Sent to the Health and Safety Section, Standards and Compliance Department											

Appendix E Example Airside Driving Training Syllabus

The following topics should normally be included in an airside driver training scheme. It should be noted that not all topics will be relevant at all airports and, at others, additional topics will need to be covered.

1 Theoretical training

1.1 National legal and regulatory obligations (relating to airside driving)

- The Air Navigation Order
- Rules of the Air Regulations
- CAP 168 Licensing of Aerodromes
- Health and Safety Legislation
- CAP 642 Airside Safety Management
- CAP 637 Visual Aids Handbook
- Rights of way

1.2 Local legal requirements and procedures

- Airport bye-laws
- Airport Conditions of Use
- Methods used to disseminate instructions and procedures (e.g. Airport Operational Instructions, Directors' Notices)
- Airport Safety Instructions
- Access to particular areas and taxiway crossing etc.
- Privileges of Airside Driving Permits (ADP) and Airside Vehicle Permits (AVP)

1.3 Personal Responsibilities

- Fitness to Drive (Medical/Health Standards)
- Personal Protective Equipment (PPE) - (Hearing, Foot, High Visibility Clothing etc.)
- Driving Standards
- Authorisation to drive a vehicle
- Smoking and other hazardous activities
- Responsibilities with respect to FOD/fuel or oil spillages
- Responsibilities of drivers with respect to avoiding collisions

1.4 General airport layout and organisation

- Surface markings and signs (for both vehicles and aircraft)
- Prohibited areas
- Speed limits
- Parking areas and restrictions

- 1.5 **Vehicle standards**
 - Condition and maintenance standards
 - Displaying of lights (general and obstruction)
 - Daily inspections and fault reporting
- 1.6 **Precautions when driving at night, in low visibility and adverse weather**
 - Additional risks
 - Differences from normal conditions
- 1.7 **Procedures to be used in conditions of low visibility and in adverse weather**
 - Airport Low Visibility Procedures (LVPs)
 - Notification of weather warnings etc.
- 1.8 **Hazards**
 - Danger zones around aircraft
 - Fuelling of aircraft
 - FOD (Foreign Object Debris/Damage)
 - Pedestrians
 - Reversing
- 1.9 **The Role of:**
 - The Civil Aviation Authority (CAA)
 - The Police
 - The enforcement agencies (HSE, Local Authority, CAA)
 - Airport operator (Airport Safety Units etc.).
- 1.10 **Security Procedures**
 - Personal requirements (e.g. ID Cards) and exemptions where applicable
 - Airside Driving Permits and Airside Vehicle Permits (ADP & AVP)
 - Security-Restricted/Controlled zones.
- 1.11 **Emergency Procedures**
 - Action to be taken in the event of a vehicle accident
 - Action to be taken in the event of a fire
 - Action to be taken in the event of an aircraft accident or incident
 - Reporting procedures
- 1.12 **Driving around aircraft stands**
 - Indication of 'live' aircraft/stand
 - Stand markings
 - Dangerous areas
 - Responsibilities of stand users
 - How to alert a pilot to a danger/Emergency Stop

1.13 Communications

- Light signals and their use by ATC
- Radio communication procedures, if appropriate

1.14 Penalties for non-compliance

- General and local penalties and driving offence procedures

2 Practical training**2.1 Visual familiarisation of:**

- Airside service roads
- Aprons
- Stands
- Surface markings and signs
- Prohibited areas
- Parking areas and restrictions
- Speed limits and signs
- Hazards to be aware of

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Appendix F Model Safety Instructions – Operation of vehicles on the Airside

Important note: This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

MANPOOL AIRPORT

SAFETY INSTRUCTION NOX/200-

CONTROL OF VEHICLES

1 Introduction

- 1.1 All operators of vehicles, which operate within the boundary of the Airport, are to comply with the safety instructions determined by the Department for Transport Road Traffic Act, Health and Safety Legislation, Airport Bye-laws, Airport Safety Policy and other airport controls. Additionally, due to the specialised nature of the vehicles operating in the movement area, certain other requirements have to be met and it is the intention of this instruction to define these special requirements in accordance with the provisions of the above and the Air Navigation Order.
- 1.2 Failure to comply with the provisions of this Instruction, the Air Navigation Order and the Airport Byelaws may render the offender and/or his company liable to penalties, which could include withdrawal of permission to enter the airside.

2 Legal Duties Relating to Health and Safety

- 2.1 The main duties in respect of health and safety of people at work (including airside) are stated in the Health and safety at Work etc. Act 1974 and associated legislation. This may be summarised as follows:

EVERY EMPLOYER HAS A DUTY TO ENSURE SO FAR AS IS REASONABLY PRACTICABLE, THE HEALTH AND SAFETY OF ANY INDIVIDUAL WHO MIGHT BE AFFECTED BY ANY WORK ACTIVITY WITHIN THE CONTROL OF THE EMPLOYER.

EVERY EMPLOYEE HAS A DUTY TO TAKE REASONABLE CARE FOR THE HEALTH AND SAFETY OF/HERSELF AND OTHER PERSONS WHO MAY BE AFFECTED BY HIS/HER ACTS AND OMISSIONS WHILST AT WORK.

- 2.2 Basic health and safety training should be regarded as essential to any employer with staff operating on the airport site. Failure to provide this means the employer is in breach of his statutory duty.

3 Definition of Movement and Manoeuvring Areas

3.1 Manoeuvring Area

That part of the aerodrome provided for the take-off and landing of aircraft and for the movement of aircraft on the surface, excluding the Apron and any part of the aerodrome provided for the maintenance of aircraft.

3.2 Movement Area

That part of the aerodrome intended for the surface movement of aircraft including the manoeuvring area, aprons and any part of the aerodrome provided for the maintenance of aircraft.

4 Licensing Requirements

4.1 Licensing of Drivers

- 4.1.1 Drivers of vehicles or plant operating airside are required to possess a valid full UK Driving Licence (i.e. not provisional)
- 4.1.2 All drivers of vehicle or plant operating airside must be in possession of a current Airside Driving Permit (ADP) appropriate to the area in which they are operating (see ASI - "Airside Driving Permits").
- 4.1.3 All drivers of vehicles operating airside on the Airport roads are required to possess a full UK Driving Licence issued by DVLA or provide a certificate of competence to operate. Competence should be to a level appropriate the type of vehicle/equipment/ plant being operated.
- 4.1.4 Operators of specialist vehicles, equipment and plant airside e.g. hydraulic lifts, mobile conveyors, catering vehicles etc. are required to hold a certificate issued by their employing company to confirm their competence to operate such vehicles, equipment and plant.
- 4.1.5 All drivers of forklift truck are to hold a certificate of competence as laid down by the Road Transport Industry Training Board (RTITB) or equivalent.
- 4.1.6 Drivers must produce personal Identity Documents, Driving Licences, Airside Passes and specialist qualification certificates on demand to Manpool Airport Operations staff, Security Department Staff, Manpool Airport Safety Advisors and Police Officers.

4.2 Airside Passes - Vehicles

- 4.2.1 Subject to the exceptions listed below, no vehicle is permitted to enter the movement area unless it bears a current Airside Vehicle Permit (AVP). Permits will not be issued to bicycles or motorcycles.
- 4.2.2 Manpool Airport is included in the UK National Aviation Security Programme, and the requirements for AVPs are specified in Directions made under the provisions of the Aviation Security Act 1982 as amended by the Aviation and Maritime Security Act 1990.
- 4.2.3 Vehicles operating solely airside do not need to be taxed (Vehicle Excise Duty) provided they are clearly marked with the Company livery, fleet number or call sign and display a current AVP issued by Manpool Airport Ltd.
- 4.2.4 See Airport Safety Instruction No XX for further details of requirements for the issue of an AVP.

- 4.2.5 All vehicles must display a current AVP issued for that vehicle when operating in airside areas.
- 4.3 Vehicles in the following categories will be admitted to the airside, subject to conditions that may be specified:-
- Police vehicles attending an emergency;
 - Specialist military vehicles, escorted by police vehicles, attending an emergency;
 - Local Authority fire appliances attending an emergency;
 - Local Authority ambulances attending an emergency;
 - Local Authority or private ambulances on non-emergency medical duties, provided that they have prior approval from the Airport Medical Centre and are escorted by an authorised person.
- 4.3.1 Goods vehicles making an ad hoc delivery or collection of goods and supplies to the premises in the Restricted and Controlled Zones, provided that they are escorted by an authorised person. The vehicle and driver will be issued with a day pass.
- 4.3.2 In the cargo area only, vehicles carrying abnormal or indivisible loads, subject to current security arrangements and escort by an authorised person.

5 Traffic Rules - General

- 5.1 Whether inside or outside a vehicle, the airside is a no smoking area.
- 5.2 Vehicles must not be driven into or through works areas, unless in conjunction with the work. Such areas are prominently marked and, where necessary, diversion routes are indicated.
- 5.3 Vehicles must not be driven onto or across stands, even when no aircraft is present, unless in connection with work on the stands such as aircraft turn-round or maintenance on the stand itself.
- 5.4 Vehicles must not move on or off a stand when an aircraft is moving, its engines are running, or the anti-collision lights are on.
- 5.5 Vehicles must stay well clear of the area directly in front of and behind aircraft engines when they are running or when the anti-collision lights are on. Additional guidance, including more detail of minimum clearance distances, will be provided by the vehicle operating company when vehicles are required to operate in the vicinity of aircraft that may have engines running.
- 5.6 Vehicles must always remain at least one metre away from any part of an aircraft unless they are engaged in a task that specifically requires them to operate closer to the aircraft.
- 5.7 Vehicles may only be driven in reverse gear when it is essential for the task in hand. When this is on an occupied stand, it must be done under external guidance (refuelling bowers with appropriate authorisation are exempt from this condition).
- 5.8 Personnel must, at all times, travel only within passenger carrying compartments of vehicles. Riding in or on any other part of a vehicle or trailer is an unnecessary risk and constitutes a serious breach of safety.

6 Lighting Requirements

6.1 Obstacle Lights on Vehicles

- 6.1.1 All vehicles operating on the movement area must display an obstacle light meeting the specification described in CAP 168 *Licensing of Aerodromes*.
- 6.1.2 **The use of hazard warning lights for this purpose is unacceptable.**
- 6.1.3 Obstacle lights on vehicles will normally provide sufficient conspicuity by day and night, and obviate the need for additional marking. However, vehicles intended for continuous use on the Movement Area are to be both marked and lighted.
- 6.1.4 Obstacle lights on vehicles are to be switched on whenever the vehicle is within the Movement Area.
- 6.1.5 Ambulances, Police, fire and rescue appliances should, in addition, carry blue flashing lights for use whilst carrying out emergency duties.
- 6.1.6 If conditions require emergency vehicles not normally based at the aerodrome to be called upon for assistance, flashing blue lights should be operated within the movement area.

6.2 Lighting General

- 6.2.1 At night or in low visibility, all vehicles are required to comply with the lighting regulations prescribed by the Road Traffic Act. Dipped headlights are to be used whenever the vehicle is moving at night or in low visibility within the movement area.

7 Movement of Vehicles on the Manoeuvring Area

- 7.1 Drivers of vehicles operating in the Manoeuvring Area are to be in the possession of an Airfield R/T Certificate of Competence.
- 7.2 No vehicle is permitted to enter the Manoeuvring Area unless permission to do so has been requested and given on each occasion by Air Traffic Control (ATC).
- 7.3 All vehicles must be equipped with obstacle lights, which must be operating. Vehicles not equipped with obstacle lights are not permitted to enter the movement area. Visiting vehicles, if not fitted with an obstacle, light must be escorted by a vehicle so equipped.
- 7.4 Vehicles operating on the manoeuvring area shall be in two way contact with ATC GMC at all times on UHF Channel 1 and must comply with instructions issued by the ATC controller.
- 7.5 All vehicles needing to work on or cross a runway must be equipped with VHF 118.3 MHz and must comply with instructions issued by the ATC controller.
- 7.6 In exceptional circumstances, a vehicle not equipped with the appropriate radio may be accompanied by a vehicle so equipped as leader.

The leader vehicle is responsible for ensuring that other vehicles in his/her party comply with instructions given by ATC, (GMC or Air controller), and must advise him if for any reason, (e.g. engine failure etc.), any of his charges are unable to follow instructions.

- 7.7 All drivers must be familiar with the procedures for dealing with a radio failure whilst on the manoeuvring area. These procedures are comprehensively covered in the training to obtain the Airfield R/T Certificate of Competence. However, they are summarised below for convenience.

It is difficult to cover all situations. The following are guideline actions that should be taken.

In the event of radio failure, if possible:

Clear the manoeuvring area

DO NOT cross runways or taxiways

Contact ATC by telephone

If the vehicle cannot vacate the manoeuvring area (e.g. towing an aircraft, at or approaching a holding point):

HOLD POSITION Try to attract ATC attention; by flashing headlamps or waving

Watch for light signals from the control tower

Await the arrival of a marshaller

Always move clear of the runway if possible and await instructions.

Meaning of Light Signals to Vehicles on the Aerodrome

STEADY RED	STOP
FLASHING RED	Move clear of the landing area
FLASHING GREEN	You may move on the manoeuvring area
FLASHING WHITE	Return to starting point on the aerodrome

7.8 Drivers should make themselves aware of aircraft pushback procedures where they affect roadways and crossings, see Airport Safety Instruction - "Pushback Procedures".

7.9 Uncontrolled Crossings

Please refer to Airport Safety Instruction – "Vehicular Uncontrolled Crossings"

8 Foreign Objects on the Manoeuvring Area

8.1 Before proceeding from one part of the Airport to another, which involves crossing Aprons, Runways or Taxiways/Taxilanes, vehicles and trailers (including tugs and aircraft), must be carefully inspected to ensure that:-

8.1.1 Anything carried in or on the vehicle or trailer is secured and therefore cannot fall off.

8.1.2 All doors and tail or sideboards are securely closed and locked shut. Catering vehicles must not be moved with the body in the elevated position.

8.1.3 No parts of the vehicle and trailer etc., are loose and likely to become detached.

8.2 It is most important to ensure that the safety of aircraft is not jeopardised by debris or other miscellaneous objects on the manoeuvring area or aprons therefore:-

All operators of vehicles and equipment in Airside areas should pay particular attention to this risk by securing loads and items carried (see also Airport Safety Instruction - "Foreign Objects on the Movement Areas").

9 Speed Limits

- 9.1 With the exception of the emergency services responding to an emergency, all vehicles/drivers are to conform to the speed limits indicated by traffic signs displayed on or adjacent to the roads. The speed limits in force are as follows:-

Link Roads	X mph
Airside roads around terminal and engineering areas	X mph
Baggage Make-up Areas	X mph

- 9.2 Drivers of vehicles in airside areas are to drive their vehicles with due care and consideration for other airport users.

10 Vehicle Parking

- 10.1 Vehicles must not be left unattended in any airside area other than those areas specifically set aside for the purpose of parking.
- 10.2 No vehicle may be left unattended either in landside or airside areas with the engine running.

11 Visiting Vehicles Airside

- 11.1 It is the responsibility of the host company/department to provide a close escort for each visiting vehicle when in the Restricted and Controlled Zones and for ensuring that the conditions of this Airport Safety Instruction are adhered to where applicable.
- 11.2 The requirement for vehicles to enter airside areas for legitimate operational purposes must be identified and sponsored by a nominated official of an authorised undertaking based at Manpool Airport. That undertaking will be responsible for meeting all conditions of use, including the full insurance requirements.
- 11.3 Escorts and escorting drivers must be in possession of a current Airside Driving Permit issued by Manpool Airport Ltd
- 11.4 During Low Visibility Procedures (LVP) an authorised escort must be provided for all visitors. For conditions that require LVPs see ASI - "Low Visibility Procedures".

12 Vehicle Height Limitations

- 12.1 The attention of all vehicle drivers and operators is drawn to the airside road height limitations around the Passenger Terminal. The minimum bridge heights are as follows:-

Adjacent to Stand 7	12ft	(3.6m)
Between Stands 9 and 10	12ft	(3.6m)
Passenger walkway between the Terminal and Rose Building	13ft	(3.9m)

- 12.2 Airside operators are to take these restrictions into account when purchasing or replacing equipment to ensure that they can operate within these restrictions.
- 12.3 If, for technical reasons, operators are unable to comply with the above limitations, they must notify Manpool Airport Airfield Operations Manager prior to acquiring the equipment so that dispensation to operate on the Aprons may be considered.

13 Right of Way

- 13.1 Vehicles must give way to taxiing or towed aircraft.
- 13.2 Vehicles must give way to passenger traffic boarding or alighting from aircraft.

14 Bicycles

Unless approved by Manpool Airport, the riding of bicycles is prohibited within the airside areas of the aerodrome.

15 Monitoring of Standards

- 15.1 All operators are responsible for the standards of training and performance of their staff and are expected to exercise adequate supervision of their activities. Manpool Airport Operations staff, Manpool Airport Safety Advisors, Airport Security staff and Police officers patrol the airside and monitor compliance with Manpool Airport Safety Instructions and Byelaws and the Air Navigation Order.
- 15.2 Manpool Airport reserves the right to conduct audits of operators' records of staff training and testing and vehicle maintenance and testing, and such records must be produced on demand. In addition, the re-testing of drivers and inspection of vehicles may be required at any time.

16 Penalties for Non-Compliance

- 16.1 Infringement of the provisions of the Air Navigation Order and the Airport Byelaws can result in prosecution of the offender and lead to fines and/or imprisonment, depending on the nature or severity of the offence. Breach of the provisions of this Instruction can lead to penalties such as the temporary withdrawal of the Airside ID pass of the offender for a first offence, to withdrawal for a longer period or permanently for repeated offences. Alternatively, the Airside Driving Permit may be withdrawn.
- 16.2 The Airside Vehicle Passes of vehicles found to be in poor condition or illegally parked may be withdrawn. In cases of gross infringement, all the Airside Vehicle Passes may be withdrawn from staff and vehicles belonging to the offending company.

17 Use of Seat Belts when Driving Airside

- 17.1 Whilst the use of seat belts when driving airside is not mandatory, the following advice is given.
- 17.2 Current best practice dictates that seat belts should be worn at all times, particularly when driving vehicles that have been fitted with Air Bags. If these measures are not taken serious injury could result to occupants should the airbag become inadvertently deployed, or following an accident.

**PLEASE ENSURE THAT THIS INSTRUCTION IS BROUGHT TO THE ATTENTION
OF ALL STAFF WHO NEED TO BE AWARE OF THE PROCEDURES**

**ANY QUESTIONS ARISING FROM THE ABOVE INSTRUCTION SHOULD BE
REFERRED TO THE CORPORATE HEALTH AND SAFETY ADVISOR**

Chapter 5 Training for Safety

Model Policy Statement

This organisation is committed through training to provide all its employees with the skills and competencies to work safely and effectively towards achieving our business goals.

This means:

- **Identifying skills and competency requirements through training needs and risk assessment.**
- **Developing training programmes in co-operation with employees, airport licence holders and our business partners.**
- **Delivering appropriate training in a timely fashion. Regularly reviewing the effectiveness of the programme.**

1 Introduction

- 1.1 The above is an example of a Training Policy Mission Statement. Such a statement, indicating commitment to training at the highest level, should be issued by the Airport Authority Board as it will form the foundation of a successful training scheme.
- 1.2 All employers have a responsibility to train their employees under requirements set out by the Health and Safety at Work etc. Act 1974 and associated regulations. Having a competent, safe workforce makes good business sense and is an essential element in any quality organisation, and especially so in the air transport industry.
- 1.3 Effective training does not just happen, it has to be managed. Training objectives should be supported by a clearly set-out policy; the organisation and resources should be in place to deliver the policy objectives and there should be provision for the measurement of effectiveness.
- 1.4 Working with and around aircraft and within the airside environment is inherently hazardous. Whilst the safety training programme of an organisation will cover a wide range of general safety issues, there are a number of specific training requirements which need to be addressed when considering safety management in airside areas.
- 1.5 All organisations working in the airside environment should address the following questions.
 - Does the written training policy cover all of its staff and does it include airside safety training?
 - How are the special needs of airside safety training identified and what objectives are set?
 - Are sufficient resources available?
 - Is there a structure in place to deliver the relevant safety training?
 - How are trainees supervised?

- What monitoring is in place that will ensure airside safety objectives continue to be met?
- 1.6 The Aerodrome Licensee should consider the need for co-ordination, exchangeability and compatibility of airside training between all airside service providers in order to foster standardisation and to ensure that a comprehensive training regime covering all airside operators exists.
- 1.7 The Safety Training Model shown in Figure 1 shows the essential principles necessary for any reliable and robust training regime. Following the flow diagram in Figure 1 will assist organisations in developing their own training programmes.

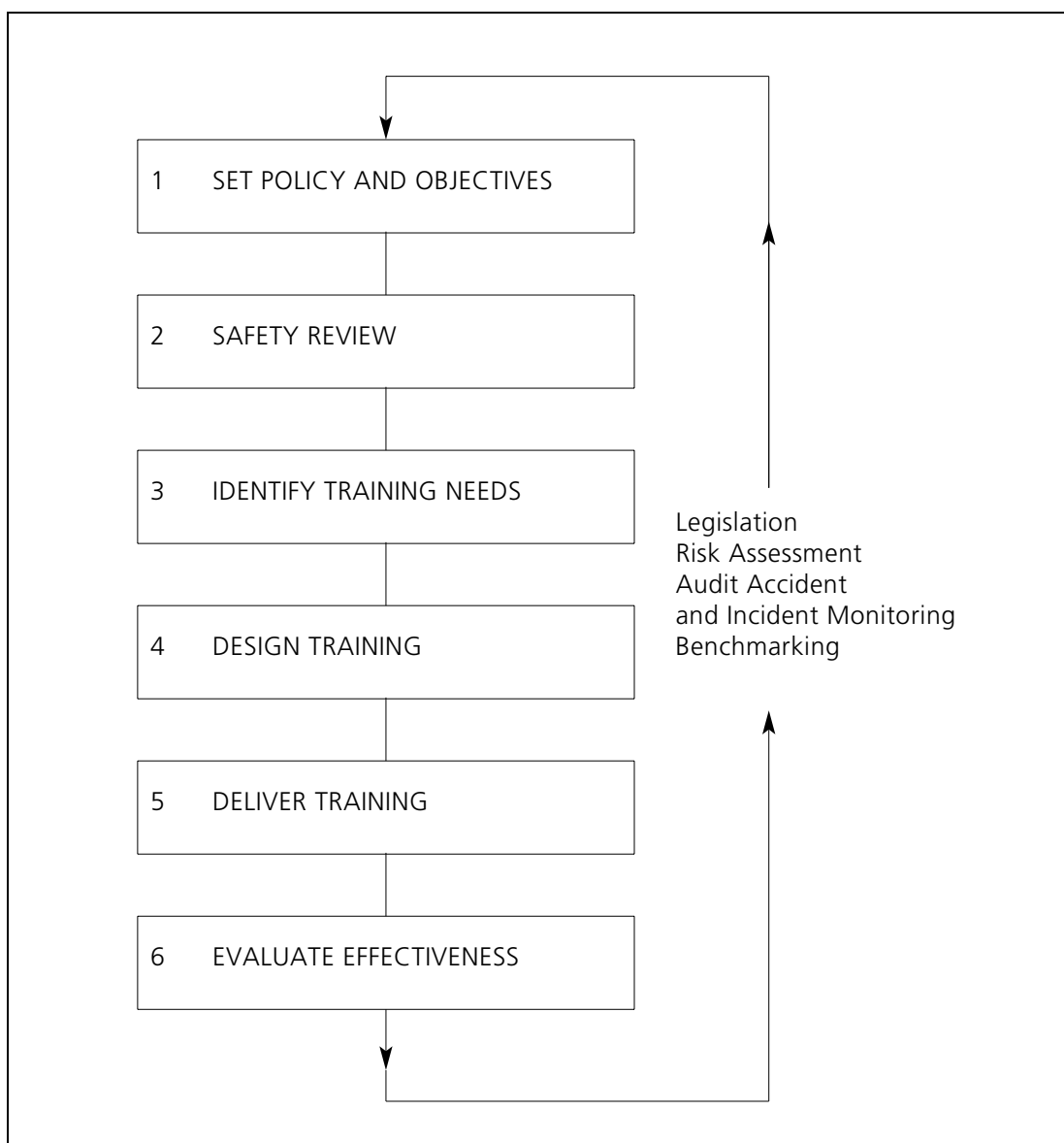


Figure 1 Safety Training Model

2 The Safety Training Model

Each stage of the Safety Training Model is described in further detail in the following paragraphs:

2.1 **Set Policy and Objectives**

Each company will need a written policy which sets out the aims of the company towards airside safety training. This policy must be consistent with the aerodrome's safety policy and, if appropriate, with that of other organisations working in the airside environment. An example of a mission statement precedes the 'Introduction' to this Chapter.

2.2 **Results of Safety Review**

Regular safety reviews within organisations will identify areas where additional or new training will be required. This will be triggered by new legislation or changes in existing law, new or changed procedures, new work equipment or identified weaknesses in the control of existing hazards. Detailed risk assessments and accident monitoring may also identify training requirements.

2.3 **Identify Training Needs**

The data collected during a company safety review will need to be analysed and may need the input of a suitably qualified safety professional. Having identified the training needs, objectives can be set to develop the company's safety policy for both the organisation and the individual.

2.4 **Design Training and Delivery**

Designing training programmes for organisations may require specialist advice. In any event it is important to ensure that the trainers are competent to deliver the necessary course material and that the training is delivered in the right format; is relevant and is pitched at an appropriate level for the trainees. Copies of training schedules for all safety training undertaken within an organisation should be retained for future reference. Up to date records of all safety training undertaken within the company should be retained and available for inspection if required. The records should be kept in such a way that an individual's training history can be comprehensively tracked.

2.5 **Evaluate/Measure Effectiveness**

Safety training should be reviewed at least annually to ensure that training needs are being met and that the training is effective in bringing about desired changes in behaviour and safety awareness. Systems to measure these changes should be in place and methods of measuring achievement need to have been set at the training objectives stage within this module. A system of feedback from employees will enable employers to assess whether the courses are meeting their objectives and changes identified by training evaluation or audit should be fed back into the course design administration.

3 **Categories of Training**

3.1 Within organisations the following categories of safety training will need to be provided.

- a) Induction training;
- b) General safety training;
- c) Safety skills training;
- d) Refresher training.

3.2 **Induction Training**

3.2.1 Safety induction training should be carried out for every person who is new to an organisation or department. Ideally, the induction training should be carried out by the person's immediate supervisor or manager, or, if this is not practicable, by a suitably experienced and qualified 'trainer'. As a minimum, it should cover local emergency procedures, main hazards of the job, key safety procedures, rules and the names of key safety personnel and safety representatives within the organisation. It should not be assumed that because an individual has worked in airside areas in the past that they will already be familiar with these topics.

3.2.2 A model Induction Checklist that may be suitable for use by Managers and Training Officers is included at Appendix A to this Chapter.

3.3 **General Safety Training**

Safety awareness training should be carried out for all levels of staff. Courses will normally be required for top and senior managers, middle to junior managers, first line supervisors and operatives. The courses should include the following:

- The Company health and safety policy
- Responsibilities for health and safety stemming from legislation and the company Safety policy
- Key safety issues specifically relevant to the locality and role of the trainee, particularly with regard to hazards

3.4 **Safety Skills Training**

3.4.1 Most categories of staff will require additional health and safety training to ensure they can work safely. Some of this safety skills training is a statutory requirement and contained within specific regulations, other skills courses will be identified in the company's training needs analysis. The specific types of training required for staff members working in airside areas will clearly depend upon the functions fulfilled by that organisation and by the individual. However, the following list of training areas will need to be considered (this list is not exhaustive):

- Driver training
- Specialist vehicle training
- Airside familiarisation training
- Use of personal protective equipment
- Noise
- Radio telephony equipment
- Emergency procedures (low visibility/inclement weather)
- Flight safety/Mandatory Occurrence Reporting procedures

3.4.2 Each area of safety skills training will require a lesson plan linked to a syllabus to ensure consistent application of training over a period of time.

3.4.3 The topic of airside driving is covered in detail in Chapter 4. Details of the skills and competencies required by drivers operating vehicles in airside areas can be found in CAP 700 Operational Safety Competences.

3.4.4 Details of radio telephony phraseology and procedures appropriate to airside vehicle operation is included in CAP 413 Radiotelephony Manual.

3.5 **Refresher Training**

Staff who require key safety skills will need to receive up to date refresher training. The frequency will vary according to the degree of risk; the use of the skills and the rate at which skills can be forgotten and when any significant changes to procedures are made. Refresher training should be programmed and recorded when completed.

4 **Conclusion**

By following the guidance and advice contained within this Chapter, airside operators will be able to develop a systematic approach to assessing training, delivering training needs and evaluating its effectiveness. The models and examples are provided for reference and may be adapted to suit the circumstances and needs of specific airports and organisations.

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Appendix A New Starter's Health & Safety Model Checklist

Important note: This Appendix represents a model checklist that might reflect the safety knowledge and competencies necessary at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The checklist content will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of knowledge and competencies that are likely to be required in order to adequately assure the safety of aircraft and people in airside areas.

MODEL CHECKLIST	Company	

This checklist may assist in ensuring that all safety knowledge and competencies are covered before permitting the new starter to operate on the apron. Although many of the topics included in the checklist are generic, it will inevitably require local amendment to suit the arrangements and environment at a particular airport.

A checklist of this sort should be used for all new starters, whether new to the company or relocated from other departments/companies, in order to familiarise them with the local arrangements for health and safety. The checklist should be completed by the Manager or Supervisor as soon as possible after the new member of staff reports for duty and before they undertake any safety-related duties.

Notes to assist both new starter and managers in completion of the form are given at the end of the checklist. The form should be signed by both the Manager and the new starter when the briefing is complete and returned to the appropriate Personnel Department for filing.

Name:	Section:	Dept:

Pay No:	Date Started:

	1	Fire Safety	Tick Box
		Who to tell about fire risks	☐
		Evacuation alarm - type	☐
		Emergency escape routes/exits - housekeeping	☐
		Assembly points	☐
		Fire call points - How to raise alarm	☐
		- emergency telephone number	☐
		- fire fighting equipment	☐
		Any other emergency procedures	☐
	2	Hazards to Personnel (list)	
		2.1	☐
		2.2	☐
		2.3	☐
		2.4	☐
		2.5	☐
		2.6 Walk round to point of hazard	☐
	3	Hazards to Aircraft (list)	
		3.1	☐
		3.2	☐
		3.3	☐
		3.4	☐
		3.5	☐
		3.6	☐
	4	Specific Safety Instructions (list)	
		4.1	☐
		4.2	☐
		4.3	☐
		4.4	☐
		4.5	☐
		4.6 Any other relevant instructions	☐

5	Protective Equipment/Clothing required (list)	Tick Box
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5.1		☐
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5.2		☐
-----	--	--------------------------

5.3		☐
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5.4		☐
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5.5		☐
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5.6		☐
-----	--	--------------------------

6	Fault Reporting Procedure	☐
----------	----------------------------------	--------------------------

7	Name of Safety Representative (if applicable) and local Safety Advisor	☐
----------	---	--------------------------

8	Accident/Incident reporting procedure	
	Location of Accident report forms	☐

9	First Aid Facilities	☐
----------	-----------------------------	--------------------------

	Location of first aid facilities	☐
--	---	--------------------------

	Name(s) of Aider(s)	☐
--	----------------------------	--------------------------

10	Welfare/Hygiene Facilities	☐
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11 Manager's/Supervisor's Statement

I confirm that the above named member of my staff has been briefed on the health and safety subjects listed above.

Signed Name

Job Title Date

12 New Starter's Statement

I confirm that I have been briefed on the above health and safety matters and have asked for clarification of anything I do not understand.

Signed Name

Job Title Date

Notes on Completing this Checklist

New Starter

This form is to be handed to your new manager or supervisor on your first day. It is your manager's responsibility to ensure that all the items on this form are covered so that you have a basic knowledge of the health and safety requirements before you start work. It is also important that you are aware of your responsibilities as an employee, in looking after your own safety and that of others working with and around you.

Information for Manager/Supervisors

It is essential that this checklist is completed at the earliest possible opportunity and before the new starter undertakes any safety-related duties. The checklist does not replace essential on-the-job training that may be required or the regular fire precautions training which is required by law. When all the items have been covered, the new starter must sign the form to acknowledge that the information has been given. You should then sign it and return it to your Personnel Department for filing. To help you complete the checklist the following items should be covered.

1 Fire Safety

Describe or demonstrate the sound of the fire alarm and whether it is one or two stage, i.e. intermittent and continuous. Indicate emergency escape routes and exits and walk them through to the assembly points. Explain how to raise the alarm in case of fire or other emergency, show where the fire call points are and make sure the emergency telephone number is known.

2/3 Hazards

List the serious hazards to both personnel and aircraft that will be encountered in the work area. Explain each one and how to deal with it. If more detailed training will be given later, say so. Walk round the work area with the new starter and point out any hazards. You may find it useful to develop a comprehensive list of work area hazards to attach to this checklist.

4 Specific Safety Instructions

There may be specific instructions to be followed and you should go through these where appropriate. In addition, you may feel it is appropriate to highlight company safety instructions where they have particular relevance.

5 Protective Equipment/Clothing

If any protective equipment or clothing is to be used you should explain exactly what is required and make arrangements for this to be issued. Explain how to look after it.

6 Fault Reporting Procedure

Explain the system for reporting safety hazards in the area. Emphasise the importance of reporting faults at once and not leaving them for someone else to discover.

7 Name of Safety Representative and Safety Advisor

Give the name of the local Safety Representative (if any) and the Safety Adviser. Explain in addition that any complaints about safety or any suggestions for improvements should be directed through the Manager/Supervisor in the first instance.

8 Accident/Incident reporting procedure

Emphasise the importance of reporting all accidents and incidents, including near misses. Show an example of the company accident reporting form, explain where the forms are kept and stress the importance of completing these fully. Explain to whom the completed form should be given.

9 First Aid Facilities

Explain the whereabouts of the nearest first aid facilities and give the name(s) of any first aider(s) in the section.

10 Welfare/Hygiene Facilities

Make sure the new starter is aware of the location of toilets and washing facilities. If occupational health facilities are available, explain where they are located and how frequently the occupational health staff visit.

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Chapter 6 Safety Performance Management and Measurement

1 Introduction

- 1.1 The term Safety Performance Management is used here to reflect a structured process of management and involves policy and target setting, activity monitoring, measuring and reviewing performance against targets, supervising, rewarding and disciplining.
- 1.2 This Chapter gives guidance to Managers and Supervisors on ongoing safety performance management, including enforcement and discipline aspects of the overall safety management system. It includes the following topics:
 - a) The fostering and maintenance of safety discipline;
 - b) Active performance monitoring and management;
 - c) Investigation of accidents and incidents;
 - d) Enforcement of regulations;
 - e) Implementation of remedial action.

2 The Fostering and Maintenance of Safety Discipline

- 2.1 One of the prime contributory factors in the establishment and maintenance of effective safety discipline is an open and honest accident/incident reporting system. Such a system will create an environment of trust at all levels and will facilitate learning from common experiences and contribute to the prevention of accidents. A sound reporting system will make due allowance for the honest genuine mistake. However, there is no place in the air transport industry for ill-discipline or lack of professionalism.
- 2.2 It is imperative that the industry reduces the statistically high percentage of aircraft damage that is not reported, but 'found'. It follows that probably the most important task is to establish a non-threatening or 'no-blame' culture for the genuine mistake which is honestly reported. It is in the general interests of the industry to reduce damage (and thus costs) to aircraft and equipment and it is everyone's responsibility to do their utmost to prevent injury to personnel. However, of paramount importance is the need to avoid aircraft departing with unreported and unknown damage. Such incidents can potentially lead to catastrophic accidents. Experience has shown that the major disincentive to reporting accidental ground damage is the fear of dismissal or other punishment.
- 2.3 Not only is unreported damage potentially lethal but it also precludes timely investigation and subsequent remedial action aimed at preventing a recurrence; a significant disadvantage when statistics show that accidents have often been presaged by earlier similar incidents. Everyone must be made aware that in any incident in which an aircraft is damaged, the most serious offence is failure to report. It follows that keeping quiet about an accident or incident will negate the 'no-blame' policy. Any subsequent disciplinary action will reflect the seriousness of the failure to report.

- 2.4 To foster the comprehensive reporting of accidents and incidents, aerodrome managements should encourage the adoption of effective safety reporting systems. These systems should be brought to the attention of every employee and adopted by all the other organisations that have an airside role. The safety reporting system should be headed by a formal statement, such as the example given at Appendix A to this Chapter, and signed by the company Chairman or Chief Executive. What should flow from this policy statement is an instruction to all staff on the subject of the reporting of aircraft ground damage. A model Safety Instruction that may be suitable for issue by an Aerodrome Authority dealing with Reporting of Aircraft Ground Damage is included at Appendix B to this Chapter.
- 2.5 Safety-awareness and knowledge of reporting procedures should be fostered by everyone as part of normal working activity. Both are a function of line management and should not be regarded by either management or employees as separate issues that are the sole responsibility of specialist safety staff. The Aerodrome Licensee should take particular care to see that his own Safety Management arrangements and staff attitudes are exemplary and that they are seen to be so by other organisations and persons working airside.
- 2.6 Although this Chapter sets out some recommended practices on enforcement of regulations etc, fostering and maintenance of safety discipline should also operate on the reward principle. Good standards and operating practices should be recognised when observed and promoted to others. Safety Management should not be confined to seeking out low standards, bad operating practices and breaches of regulations, but the overall safety performance system should include procedures for recognising, highlighting and possibly rewarding good performance.
- 2.7 One cause of airside accidents is where personnel trained for low skill tasks are required to carry out these tasks in a 'high-tech' environment. Managers and Supervisors must ensure that selection and training recognise the full operational safety requirement: that is, selection and training satisfy the needs of the task and the environment within which the task is to be undertaken.

3 Active Performance Monitoring and Management

- 3.1 Airside safety performance and management should be pro-active, rather than reactive, at all levels of the management structure. Monitoring should be part of the daily routine, not a set piece procedure kept 'on ice', for use only following an incident or accident. Performance monitoring and management should be an accepted part of the overall responsibilities of all management and supervisory personnel. Although large organisations might have staff dedicated to full-time safety performance monitoring, safety performance monitoring and management is a line management responsibility – it cannot be delegated!
- 3.2 Very few, if any, airside operations procedures or working practices occur in total isolation. Many airside operations involve co-operation, both formal or informal between two or more departments of an organisation and often between two or more separate organisations. This is a complex matrix that requires good understanding and agreement. It is clearly advantageous, and in many cases necessary, for line managers to work closely with their counterparts from other departments or from other organisations. The benefits of co-ordination are obvious; increased rapport, a mutual exchange of safety-related information and the same standards of safety discipline applied across the whole aerodrome operation. The Aerodrome Licensee should act as the focal point in co-ordinating best practice for all organisations on the aerodrome; for example, by acting as the Chairman of the Airside

Safety Committee. The managers and supervisors of all airside operators should spend a significant proportion of their time and effort physically present on airside working areas. Their role should include observation of, and participation in, all aspects of airside work carried out by their staff and indeed the staff of other organisations where it can be seen that airside safety could be improved.

- 3.3 Wherever practical, Aerodrome Licensees should collate safety performance data from all airside operators and co-ordinate an overall safety performance programme. Such a system will identify those organisations that operate best practice and will enable lessons from incidents to be shared by all airside operators. In order to do this it is essential that all operators collect comparable data and the Aerodrome Licensee should define the data to be collected.
- 3.4 Research has suggested that almost 50% of serious aircraft accidents have resulted from non-compliance with procedures at some point. Clearly it is important that all safety-related activities are described by documented procedures. Such procedures should include defined performance measures and monitoring systems where appropriate.
- 3.5 Companies operating on the apron should establish an audit programme to ensure that measures to assure and monitor safety performance are being implemented correctly and are achieving their intended objective. The Aerodrome Licensee should conduct a similar programme of audits to assess the effectiveness of aerodrome wide procedures. Any deficiencies that are identified in an audit should be considered and appropriate remedial action or measures taken. The audit should be followed up to ensure that these remedial actions and measures are effective. In this way deficiencies in procedures that could lead to an unsafe situation should be remedied before an incident or accident occurs.

4 Investigation of Accidents and Incidents

- 4.1 It should be the primary aim of any investigation following an accident or incident to establish the facts of the matter in order to prevent a recurrence. Managers are reminded that beyond the requirement of internal procedures, some occurrences and accidents fall within statutory reporting requirements. These requirements are set out in descriptive material covering the Mandatory Occurrence Reporting (MOR) scheme (see CAP 382 The Mandatory Occurrence Reporting Scheme for further details), The Investigation of Accidents, Regulations and The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations, 1995. The allocation of blame for disciplinary purposes should be secondary to the objective of accident prevention. Accident or incident investigation will usually be best conducted by a line manager or supervisor. Such persons will almost certainly be most familiar with the type of operation or working practice during which the accident or incident occurred. In some cases, it may be preferable for the investigation to be carried out by a manager from a different department from that involved in the accident or incident. It is important that managers do not assume that investigations into accidents and incidents conducted under statutory provisions will necessarily meet the requirements of their own internal investigation procedures.
- 4.2 Any realistic investigation will have to be structured and could be assisted by the use of a proforma. The example proforma at Appendix C is intended to be completed jointly by the investigator and those involved in the accident or incident. However, this is not a simple 'tick-box' exercise; this proforma is just one part of a more complex systematic exercise involving training on investigation techniques, structured

interviewing technique, analysis of facts, implementation of change and organisational commitment to a safety culture.

- 4.3 'Accidents' and 'Incidents' in the context of this Chapter should not be limited solely to occurrences where physical damage or injury is sustained to equipment, structures, or persons. Occurrences exhibiting a possible risk of damage or injury will also merit formal investigation, where managers consider there has been exposure to unacceptable but avoidable risk. Managers should also be aware that where an accident occurs airside it might be necessary to co-ordinate the airside safety investigation with parallel investigations by others.

5 Enforcement of Regulations

- 5.1 It is essential that a 'no-blame' accident and incident reporting policy is not confused with the necessity for sanctions that preserve airside safety against indiscipline. Establishing a 'no-blame' culture needs to be reconciled with the need to have formal disciplinary procedures that, at their extreme, might have the force of criminal law under airport bye-laws or legislative provisions. It is this area of safety performance management that requires the greatest management expertise, clear thinking and well documented procedures.
- 5.2 Some accidents and incidents will come under the jurisdiction of the CAA, AAIB, Police, or HSE and in such cases neither the Aerodrome Licensee nor the employer (if different) can interfere with the due process of law. However, there is no reason why a 'no blame' reporting system for dealing with all events cannot sit comfortably with the defined obligations under existing legislation for reporting accidents and incidents. The final stage is for the aerodrome management and the management of other agencies that operate airside to agree on what matters are contrary to published regulations and the options and level of sanctions that could be available. Most of these 'offences' will be 'prima facie', requiring an immediate response – in the interest of safety and discipline – and most if not all will be capable of being dealt with summarily.
- 5.3 Each aerodrome structure is different and each management or group will have to decide what those offences are that can be dealt with summarily. The following list is not exhaustive, but is intended to stimulate ideas:
- a) Failure to report damage to an aircraft;
 - b) Smoking airside;
 - c) Driving on the Manoeuvring Area without permission;
 - d) Failure to report a potentially hazardous incident;
 - e) Driving in front of, or behind an aircraft with aircraft engines still running and/or anti-collision warning lights on;
 - f) Parking in areas marked as parking unsafe or prohibited;
 - g) Leaving vehicle unattended with engine running on movement area.
- 5.3.1 All employers at each aerodrome will need to consider their disciplinary structure in order to ensure that it is appropriate and fair. Procedures should provide proper opportunities for individuals to put their side of the case.

- 5.3.2 The Aerodrome Licensee should publish any penalties it has established for non-compliance with the rules and instructions whilst working airside including the use of vehicles. These may include temporary or permanent exclusion from the airside area of individuals, particular vehicles, or group of vehicle controlled by a specified vehicle operator.
- 5.3.3 In the interests of natural justice it will be important for any penalty system to include an appeal procedure. However, this should not prejudice the immediate exclusion of a particular individual or vehicle where, in the opinion of the Aerodrome Licensee, this is necessary in the interests of safety.
- 5.4 Although local circumstances and agreements will dictate the sanction or penalty awarded for offences, the following examples are for consideration. Again, the list is not exhaustive, but is intended to stimulate ideas:
- Verbal caution – not recorded
 - Formal verbal caution, recorded on personal employment file for specified period, then expunged
 - Formal written caution, recorded on personal employment file for a specified period
 - Temporary airside driving ban for driving offences
 - Temporary airside driving ban with requirement for retraining and testing
 - Permanent airside driving ban, for serious or persistent driving offences
 - Temporary withdrawal of airside pass
 - Permanent withdrawal of airside pass
 - Disciplinary action leading to downgrading, suspension or dismissal
- 5.5 The Aerodrome Licensee is responsible to the Civil Aviation Authority for ensuring that the aerodrome is safe for use by aircraft. The continuance of the aerodrome operating licence depends on the Licensee's ability to secure the continued maintenance of safety for aircraft. The Licensee should make this responsibility for safe operation quite clear to his tenants, business partners and contractors and seek compliance with appropriate safety management and safety performance standards.
- 5.6 Whilst the Aerodrome Licensee is responsible to the CAA for the safe operation of the aerodrome with respect to aircraft, all organisations and operators at an aerodrome are collectively and individually responsible for safety in its widest sense. Some of these matters are dealt with more fully in Chapters 1 and 2, however, it should be noted that nothing said here or within this document as a whole can absolve any person from his responsibility and accountability under the law.
- 5.7 Clearly disciplinary offences against safety regulations may be reported by anyone, but should be channelled in the first instance to the alleged offender's supervisor or manager. Subsequent action will depend on what arrangements are in force for disciplinary offences at each particular aerodrome. However, it is the Aerodrome Licensee who carries the responsibility and he may require to know how disciplinary offences against aerodrome safety regulations have been dealt with, in pursuit of his responsibilities. It is a matter for service providers and Aerodrome Licensees to reach agreement about how accidents and incidents are to be reported, recorded and investigated. Participation in the Airside Safety Committee is a good vehicle for this action. Managers are reminded that certain events will fall within mandatory reporting requirements. See paragraph 4.1.

- 5.8 In some cases the Aerodrome Licensee may take action against a company or organisation, as opposed to an individual.

6 Implementation of Remedial Action

The objective of any accident or incident investigation should be to produce findings which facilitate further action aimed at prevention of recurrences. Such findings should focus on how procedures, practices, or regulations failed to prevent the accident or incident. The report should list recommendations and nominate those responsible for taking corrective action. The whole proceedings should be reviewed at senior management level with the intention of establishing what subsequent actions are required. The loop should then be closed by ensuring that all line managers and safety specialists are aware of the changes so that they can monitor their effectiveness. It is equally important to determine whether the changes identified require any changes to training syllabuses and to action accordingly.

7 Conclusion

- 7.1 Any system to manage safety and to measure and monitor safety performance will have a number of common elements. There are many texts which describe both theoretical aspects and practical application of safety performance management and this document seeks to illustrate some of these principles. It must be remembered, however, that only the Aerodrome Licensee and managements of airside operators can determine the most appropriate systems for their organisations and environment.
- 7.2 Whatever systems are implemented, airside safety performance management essentially consists of two fundamental and key elements. Firstly, developing a 'no-blame' culture, based on company policy to ensure that accidents affecting aircraft and airside safety are reported, in order to protect the public and the workforce from preventable injury. Secondly, a code of discipline to secure a safe airside working environment for everyone. The outcome of effective safety performance management should be seen by everyone to be:
- Educational and developmental
 - Encouraging and rewarding
 - Active rather than reactive
 - Constant rather than intermittent
 - Continuing rather than currently fashionable
 - Part of normal work rather than an isolated activity
 - A means of reducing or containing costs rather than costing money itself
 - Everybody's concern rather than that of specialists, or worse, nobody's concern
 - Punitive only as a last resort

Appendix A Model Company Policy Statement

Important note: This Appendix represents a model statement that might reflect the policy at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual policy and practices at an airport.

REPORTING OF ACCIDENTS/INCIDENTS TO AIRCRAFT

STATEMENT BY THE CHIEF EXECUTIVE, MANPOOL AIRPORT

It is the responsibility of every person employed by Manpool Airport to report any circumstances affecting safety. Where a reported occurrence indicates an unpremeditated or inadvertent lapse, the company hold the view that free and full reporting is the primary aim, and that every effort will be made to avoid action that may inhibit reporting.

It is not the policy of Manpool Airport to institute disciplinary procedures in response to reporting any incident affecting air safety. However, in cases where it becomes apparent that a dereliction of duty amounting to gross negligence has occurred disciplinary action could follow.

The purpose of any investigation of an accident or incident is to establish the facts and cause, and, where necessary, take measures to prevent further occurrences. This process requires the full co-operation of all concerned throughout. It is not the intention to apportion blame or liability. Investigations will be carried out under the direction of the Operations Director.

SIGNED:
CHIEF EXECUTIVE
MANPOOL AIRPORT
1 APRIL 200-

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Appendix B Model Safety Instruction - Reporting Aircraft Ground Damage Incidents

MANPOOL AIRPORT

SAFETY INSTRUCTION NOX/200-

REPORTING AIRCRAFT GROUND DAMAGE INCIDENTS

1 General Policy

It is Manpool Airport's primary concern in the interest of safety, to encourage the full and uninhibited reporting of any incident which might affect flight safety, including all aircraft ground damage incidents, however minor. It is the responsibility of every employee to report any circumstances of aircraft ground damage and to co-operate fully throughout any investigation.

2 Purpose of Investigations

- 2.1 The purpose of an investigation of aircraft ground damage incidents is to establish the facts and cause, in order to prevent further occurrence. The purpose is not to apportion blame or liability. Subject to paragraph 2.2 below, investigations will be conducted by the Departmental Manager who shall determine as quickly as possible the facts of the case, in order to initiate any necessary changes to procedures, operating or engineering standards, training syllabus, modifications of equipment or other measures. This process will take place whether or not other authorities decide to carry out their own investigation.
- 2.2 In the event of a 'Significant Incident', as determined and defined in current Operational Safety Instructions, the Operations Director will appoint the investigator and be responsible for appointing the other members of the investigation team.

3 Publication and Personal Privacy

It is Manpool Airport's policy that the substance of any report following the investigation of a Significant Incident should be disseminated where possible and appropriate in the interests of safety. Manpool Airport will not, however, disclose the name of the person making a report, or of a person to whom it relates, except to the authorities of the UK or unless required to do so by law, or with the consent of the individual concerned. Manpool Airport will, accordingly, take all necessary steps not to disclose to any third party the identity of the reporter, or of those individuals in an occurrence.

4 Disciplinary Proceedings

Manpool Airport's general policy is not to institute disciplinary proceedings in response to the reporting of any incident of aircraft ground damage. Only in the rare circumstances where an employee has taken action or risks which, in the Company's opinion, no reasonably prudent employee with his/her training and experience should have taken, will Manpool Airport consider initiating such disciplinary action. The fact that the employee has fully complied with his/her responsibilities to report the

circumstances and co-operated fully throughout any investigation will weigh in his/her favour in the Company's consideration of the matter. However, in the event of an employee failing to report aircraft ground damage that he/she has caused or discovered, he/she will be exposed to full disciplinary action.

5 Counselling and Support

It is Manpool Airport's policy to provide counselling and support for individuals involved in a Significant Incident, for as long as it is deemed necessary or appropriate. The employee's senior line manager, in association with the Airport's Health and Welfare Services, will ensure that this policy is applied.

SIGNED:
CHIEF EXECUTIVE
MANPOOL AIRPORT
1 APRIL 200-

Appendix C Accident and Incident Analysis and Assessment – Model Proforma

MANPOOL AIRPORT

ACCIDENT AND INCIDENT ANALYSIS AND ASSESSMENT

SECT. 1 GENERAL

REFERENCE _____ ANALYST'S NAME _____
AIRLINE/COMPANY _____ TELEPHONE _____
INCIDENT DATE _____ PREVIOUS REFERENCE _____
TIME _____
PLACE _____

SECT. 2 OPERATIONAL ACTIVITY AND RESULT

ACTIVITY	RESULT
() AIRCRAFT ARRIVAL	() AIRCRAFT DAMAGE
() AIRCRAFT SERVICING	() VEHICLE DAMAGE
() AIRCRAFT TURNROUND	() PERSONNEL INJURY
() AIRCRAFT DEPARTURE	() EQUIPMENT DAMAGE
() VEHICLE	() AIRCRAFT DELAY
() EQUIPMENT	() OTHER _____
() OTHER _____	

Please provide a short narrative description of the accident, incident degradation or failure

SECT. 3 CONTRIBUTING FACTORS CHECKLIST

Instructions on completing this section:

- 1 Tick each contributing factor.
- 2 For each factor not contributing, mark 'N/A'
- 3 Provide brief narrative for each contributing factor

A INFORMATION

e.g. Workcards; procedures; maintenance manuals; operation orders; instructions etc

- ☐ Not understandable
- ☐ Unavailable/inaccessible
- ☐ Incorrect
- ☐ conflicting information
- ☐ Other _____

Brief specific details _____

B EQUIPMENT/TOOLS/PARTS

- | | |
|--|---|
| ☐ Unsafe | ☐ Inappropriate to task |
| ☐ Inaccessible | ☐ Cannot use in intended environment |
| ☐ Unreliable | ☐ No instructions for use |
| ☐ Mis-calibrated | ☐ Too complicated |
| ☐ Unavailable | ☐ Incorrectly labelled |
| ☐ Other (explain) _____ | |

Specify exactly what equipment, tool, or part, failed, was inadequate or led to the incident.

C AIRCRAFT/EQUIPMENT/VEHICLE DESIGN

- ☐ Complex
- ☐ Not accessible
- ☐ Not user friendly
- ☐ Confusing variation between models/variants
- ☐ Other (explain) _____

D MAINTENANCE ERROR**AIRCRAFT**

- ☐ Improper installation
- ☐ Equipment not installed
- ☐ Wrong part installed
- ☐ Wrong orientation
- ☐ Improper location

GROUND EQUIPMENT

- ☐ Improper installation
- ☐ Equipment not installed
- ☐ Wrong part installed
- ☐ Wrong orientation
- ☐ Improper location

E JOB/TASK/ACTIVITY

- ☐ Repetitive or monotonous
- ☐ Complex or confusing
- ☐ New task or task change
- ☐ Boredom
- ☐ Other (explain) _____

- ☐ Compacency
- ☐ Inadequate planning/prioritisation
- ☐ Differ from similar tasks

F QUALIFICATIONS/SKILLS

- ☐ Proficiency/experience level
- ☐ Inadequate task knowledge
- ☐ Inadequate process knowledge
- ☐ Inadequate system Knowledge
- ☐ Other (explain) _____

- ☐ Technician
- ☐ Supervisor
- ☐ Manager

G FACTORS AFFECTING INDIVIDUAL PERFORMANCE

- ☐ Physical health (including sight/hearing)
- ☐ Fatigue
- ☐ Time constraints
- ☐ Alcohol/drugs/medication
- ☐ Other (Explain. How did these factors lead to the incident?) _____

- ☐ Peer pressure
- ☐ Body size/strength
- ☐ Significant life changes

H ENVIRONMENT AND FACILITIES

- | | |
|---|---|
| ☐ High noise levels | ☐ Vibration |
| ☐ Hot | ☐ Distractions/interruptions |
| ☐ Cold | ☐ Cleanliness |
| ☐ Humidity | ☐ Hazardous/toxic substances |
| ☐ Rain | ☐ Power sources |
| ☐ Snow | ☐ Inadequate ventilation |
| ☐ Dark | ☐ Unsafe work area |
| ☐ Wind | |
| ☐ Other (Given specific location and how it led to the incident) _____ | |
-
- _____
-
- _____

J ORGANISATIONAL ISSUES

- ☐ Quality of support
- ☐ Inadequate Company policy
- ☐ Unions
- ☐ Morale
- ☐ Other (How did these factors lead to the incident?) _____
-
- _____
-
- _____

K SUPERVISION

- ☐ Poor planning/organisation of tasks
- ☐ Inadequate prioritisation of tasks
- ☐ Inadequate delegation/assignment of task
- ☐ Unrealistic expectations
- ☐ Excessive supervision
- ☐ Other (Explain how these factors lead to the incident) _____
-
- _____
-
- _____

K COMMUNICATION

- | | |
|---|---|
| ☐ Between departments | ☐ Between shift and supervisor |
| ☐ Between people | ☐ Between supervisor and manager |
| ☐ Between shifts | |
| ☐ Other (Explain how these factors lead to the incident) _____ | |
-
- _____
-
- _____

M ANY OTHER FACTORS

SECT. 4 CORRECTIVE ACTIONS**A ARE THERE ANY CURRENT PROCEDURES AND/OR POLICIES IN YOUR ORGANISATION INTENDED TO PREVENT THIS INCIDENT, BUT DIDN'T?**

() Operational Instructions. Specify:

() Company regulations. Specify:

() Inspection schedules. Specify:

() Engineering/maintenance/training manuals. Specify:

() Inter-company bulletins/letters. Specify:

() Any other instruction/regulation or policy document. Specify:

B LIST CORRECTIVE ACTIONS SUGGESTED OR TAKEN AT LOCAL LEVEL

C OTHER CORRECTIVE ACTIONS SUGGESTED

Signed: _____ Name _____

Signed: _____ Name _____

Date: _____

NOTE: This proforma has been adapted and amended from an example provided by the Boeing Airplane company whose co-operation in granting permission to reproduce this item is hereby acknowledged.

Boeing wish it to be stressed that this proforma, (or any adaptation of it) is not designed or intended to be used in isolation but as part of a wider based system for incident investigation and follow up.