CIVIL AVIATION GUIDANCE MATERIAL – 6010

GROUND HANDLING

GH

CIVIL AVIATION AUTHORITY OF MALAYSIA

ISSUE 01
REVISION 01 – 15th NOVEMBER 2022

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Introduction

This Civil Aviation Guidance Material 6010 (CAGM - 6010) is issued by the Civil Aviation Authority of Malaysia (CAAM) to provide guidance for ground handling service providers (GHSP), pursuant to Civil Aviation Directives 6010 – Ground Handling.

Organisations may use these guidelines to demonstrate compliance with the provisions of the relevant CAD's issued. Notwithstanding Regulation 204 and Regulation 205 of the Malaysian Civil Aviation Regulations 2016 (MCAR 2016), when the CAGMs issued by the CAAM are used, the related requirements of the CAD's are considered as met, and further demonstration may not be required.

Datuk Captain Chester Voo Chee Soon
Chief Executive Officer
Civil Aviation Authority of Malaysia

Civil Aviation Guidance Material components and Editorial practices

This Civil Aviation Guidance Material is made up of the following components and are defined as follows:

Standards: Usually preceded by words such as *"shall"* or *"must"*, are any specification for physical characteristics, configuration, performance, personnel or procedure, where uniform application is necessary for the safety or regularity of air navigation and to which Operators must conform. In the event of impossibility of compliance, notification to the CAAM is compulsory.

Recommended Practices: Usually preceded by the words such as "*should"* or "*may*", are any specification for physical characteristics, configuration, performance, personnel or procedure, where the uniform application is desirable in the interest of safety, regularity or efficiency of air navigation, and to which Operators will endeavour to conform.

Appendices: Material grouped separately for convenience but forms part of the Standards and Recommended Practices stipulated by the CAAM.

Definitions: Terms used in the Standards and Recommended Practices which are not self-explanatory in that they do not have accepted dictionary meanings. A definition does not have an independent status but is an essential part of each Standard and Recommended Practice in which the term is used, since a change in the meaning of the term would affect the specification.

Tables and Figures: These add to or illustrate a Standard or Recommended Practice and which are referred to therein, form part of the associated Standard or Recommended Practice and have the same status.

Notes: Included in the text, where appropriate, Notes give factual information or references bearing on the Standards or Recommended Practices in question but not constituting part of the Standards or Recommended Practices;

Attachments: Material supplementary to the Standards and Recommended Practices or included as a guide to their application.

It is to be noted that some Standards in this Civil Aviation Directive incorporates, by reference, other specifications having the status of Recommended Practices. In such cases, the text of the Recommended Practice becomes part of the Standard.

The units of measurement used in this CAD are in accordance with the International System of Units (SI) as specified in CAD 5. Where CAD 5 permits the use of non-SI alternative units, these are shown in parentheses following the basic units. Where two sets of units are quoted it must not be assumed that the pairs of values are equal and interchangeable. It may, however, be inferred that an equivalent level of safety is achieved when either set of units is used exclusively.

Any reference to a portion of this document, which is identified by a number and/or title, includes all subdivisions of that portion.

Throughout this Civil Aviation Guidance Material, the use of the male gender should be understood to include male and female persons.

Record of Revisions

Revisions to this CAGM shall be made by authorised personnel only. After inserting the revision, enter the required data in the revision sheet below. The *'Initials'* has to be signed off by the personnel responsible for the change.

Rev No.	Revision Date	Revision Details	Initials
ISS01/REV01	15 November 2022	Refer to summary highlights	CAAM

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Summary of Changes

ISS/REV no.	Item no.	Revision Details
ISS01/REV01	Para 2.1.2 (j)	Revised to provide clarity on requirements
	Para 2.2.1.1, Note 1	Revised to provide clarity on requirements
	Para 2.2.1.1, Note 5	Revised to provide clarity on requirements
	Para 3.2.7	Added new requirements
	Para 3.3	Added new requirement
	Para 3.4	Added new requirement
	Para 3.5	Added new requirement
	Para 3.6	Added new requirement
	Para 5.13.1, Note 1	Added new checklist
	Para 6.5.2	Revised to provide clarity on requirements
	Para 6.7	Revised to provide clarity on requirements
	Para 16.1	Removed form CAAM/BOP/GH/05 from Appendix 1
	Para 16	Removed Appendix 5

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1 Definition and Abbreviation

1.1 Definitions

Air operator certificate (AOC) means a certificate authorising an operator to carry out specified commercial air transport operations.

Airport Operator means the party responsible to operate the airport and holds an Airport Operating Certificate.

Baggage means such articles, effects and other personal property of a passenger as are necessary or appropriate for wear, use, comfort, or convenience in connection with the trip. Unless otherwise specified, it includes both checked and unchecked baggage.

Cargo means any goods carried on an aircraft, which are covered by an air waybill.

CAAM GH means the Civil Aviation Authority Malaysia Ground Handling Unit

CEO means CAAM Chief Operating Officer

Dangerous Goods means articles or substances, which are capable of posing significant risk to health, safety or property when transported by air.

Ground Handling Services (Third Party Ground Handling Services) means the services necessary for an aircraft arriving at, and departing from, an airport, other than air traffic services.

Ground Handling Service Provider means an organisation intending to perform ground handling functions and must be registered in Malaysia according to the applicable Companies Law.

IATA means International Air Transport Association.

IATA Dangerous Goods Regulations means regulations published by the International Air Transport Association IATA. The globally accepted field source reference for companies shipping hazardous materials by air, as amended.

ICAO means the International Civil Aviation Organisation.

ICAO Dangerous Goods Regulations means regulations published by the International Civil Aviation Organisation (ICAO). The globally accepted field source reference for companies shipping hazardous materials by air, as amended.

Load means any item carried on an aircraft other than what is included in the basic operating weight.

Load Control means a function to ensure the optimum utilisation of the aircraft capacity and distribution of load as dictated by safety and operational requirements.

MAVCOM means the Malaysian Aviation Commission.

Safety Management System (SMS) means the system for the management of safety of operations. It includes the organisational structure, responsibilities, procedures, processes,

and provisions for the implementation of safety policies by the organisation. It provides for the control of safety within the organisation and the safe use of facilities and equipment.

Self-Handler means whoever provide ground handling services for their own operations only. Self-handler shall comply with Ground Handling technical requirements as specified in AOC approval.

1.2 Abbreviation

AM	=	Accountable Manager
AOC	=	Air Operator Certificate
APU	=	Auxiliary power-unit
ATC	=	Air traffic control
ATS	=	Air traffic services
AWI	=	Airworthiness inspector
CAAM	=	Civil Aviation Authority Malaysia
CEO	=	Chief Operating Officer
CSI	=	CAAM Safety Inspector
EI	=	Energy Institute
ELT	=	Emergency locator transmitter
ERA	=	Equipment Restraint Area
FOI	=	Flight operations inspector
FRMS	=	Fatigue risk management system
GHSP	=	Ground Handling Service Provider
GHI	=	Ground Handling Inspector
GH GM-O	=	Ground Handling Guidance Material - Operators
IATA	=	International Air Transport Association
ICAO	=	International Civil Aviation Organisation
ISAGO	=	IATA's Safety Audit of Ground Operations
JIG	=	Joint Inspection Group
MCAR	=	Malaysian Civil Aviation Regulation
MET	=	Meteorological
NPH	=	Nominated Post Holder
NOTAM	=	Notice to airmen
PIC	=	Pilot-in-command
PM	=	Project Manager
POPS	=	Prospective operator’s pre-assessment statement
RVSM	=	Reduced vertical separation minima
SARPs	=	Standards and Recommended Practices
SMS	=	Safety management system
SOA	=	Safety oversight audit
SOP	=	Standard operating procedure
TAC	=	Technical Approval Certificate

2 Ground Handling

2.1 Introduction

2.1.1 This section prescribes the rules and technical requirements governing organisations which provide ground handling services at Malaysian aerodrome.

2.1.2 For the purposes of this section, a ground handling services includes any of the following:

a) Category 1 - Ground administration and supervision.

b) Category 2 - Passenger handling.

c) Category 3 - Freight and mail handling (Landside).

d) Category 4 - Aircraft services.

e) Category 5 - Aircraft maintenance.

f) Category 6 - Flight operations and crew administration.

g) Category 7 - Surface transport.

h) Category 8 - Catering services.

i) Category 9 - Baggage handling.

j) Category 10 - Freight and mail handling (Airside).

k) Category 11 - Ramp handling.

l) Category 12 - Fuel and oil handling.

2.1.3 The operations category associated with a TAC are an integral part of the authorisation under which the ground handling service provider conducts operations.

2.1.4 The operation categories identify CAAM office involved, the number of the associated TAC, the name of the operator, the date of issuance and the signature of CAAM official responsible for its issuance and show the type of operation and the aerodromes in which operations are authorised.

2.1.5 The operation categories cover all aspects of the operation and include special limitations, conditions and authorisations with criteria as appropriate. Detailed conditions applicable to operations categories may also be approved by CAAM in the operations manual.

2.2 Ground Handling Services Category.

2.2.1 This section prescribes the rules and technical requirements governing organisations which provide ground handling services at Malaysian aerodrome. Detailed of ground handling services category is explained as below:

2.2.1.1 Category 1 - Ground administration and supervision.

Comprising:

a) Representation and liaison services with local authorities or any other entity disbursements on behalf of the airport user and provision of office space for its representatives;

b) Load control, messaging and telecommunications;

c) Handling, storage and administration of unit load devices;

d) Any other supervision services before, during or after the flight; and

e) Any other administrative service requested by the airport user.

Note 1. – Culture management – Clear segregation of GHSP Station Head role/responsibility & airline representation role/responsibility and line of reporting (overall supervision & operations monitoring) – Customer/airline/operator shall employ personnel to resume customer/airline/operator Station Manager roles.

Note 2. - Facilities, storage & office space – May occupy same space, however must have locked storage for accountable document.

Note 3. - Supervisory services - shall be stipulated in the Standard Ground Handling Agreement (SGHA) and Service Level Agreement (SLA) between operator (airline) and GHSP.

Note 4. - Support - implementation of airline's Safety Management System (SMS) and Emergency Response Plan (ERP) Handling (if required).

Note 5. - Qualified and trained personnel's - Ensures personnel training complied with regulatory and mandatory requirement according to training matrix (SMS etc) to fulfil the station management role of the GHSP.

2.2.1.2 Category 2 - Passenger handling.

Comprising any kind of assistance to arriving, departing transfer or transit passengers, including checking tickets and travel documents, registering baggage and carrying it to the sorting area.

2.2.1.3 Category 3 - Freight and mail handling (Landside).

Comprising:

a) For freight handling of related documents, customs procedures and the implementation of any security procedure agreed between the parties or required in the circumstances;

b) For mail handling of related documents and implementation of any security procedure between the parties or required by the circumstances.

2.2.1.4 Category 4 - Aircraft services.

Comprising:

a) The external and internal cleaning of the aircraft, and the toilet and water services;

b) The cooling and heating of the cabin, the removal of snow and ice, the de-icing of the aircraft;

c) The rearrangement of the cabin with suitable cabin equipment, the storage of the equipment.

2.2.1.5 Category 5 - Aircraft maintenance.

Comprising:

a) Routine services performed before flight;

b) Non-routine services requested by the airport user;

c) The provision and administration of spare parts and suitable equipment;

d) The request for or reservation of a suitable parking and/or hangar space.

Note – Application and issuance of approval for Category 5 is done through Part 145 Certification by Air Worthiness Division of CAAM.

2.2.1.6 Category 6 - Flight operations and crew administration.

Comprising –

a) Preparation of the flight at the departure airport or at any other point;

b) In-flight assistance, including re-dispatching if needed;

c) Post-flight activities;

d) Crew administration.

2.2.1.7 Category 7 - Surface transport.

Comprising -

a) The organisation and execution of crew, passenger, baggage, freight and mail transport between different terminals of the same airport, but excluding the same transport between the aircraft and any other point within the perimeter of the same airport;

b) Any special transport requested by the airport user.

2.2.1.8 Category 8 - Catering services.

Comprising:

a) Liaison with suppliers and administrative management;

b) Storage of food and beverages and of the equipment needed for the preparation of food and beverages;

c) Cleaning of the equipment;

d) Preparation and delivery of equipment as well as of bar and food supplies.

2.2.1.9 Category 9 - Baggage handling.

Comprising with handling baggage in the sorting area sorting it, preparing it for departure, loading it onto and unloading it from the devices designed to move it from the aircraft to the sorting area and vice versa, as well as transporting baggage from the sorting area to the reclaim area.

2.2.1.10 Category 10 - Freight and mail handling (Airside).

As regards the physical handling of freight and mail whether incoming, outgoing or being transferred, between the air terminal and the aircraft.

2.2.1.11 Category 11 - Ramp handling.

Comprising-

a) Marshalling the aircraft on the ground at arrival and departure;

b) Assistance to aircraft parking and provision of suitable devices;

c) Communication between the aircraft and the air-side supplier of services;

d) The loading and unloading of the aircraft, including the provision and operation of suitable means, as well as the transport of crew and passengers between the aircraft and the terminal, and baggage transport between the aircraft and the terminal;

e) The provision and operation of appropriate units for engine starting;

f) The moving of the aircraft at arrival and departure, as well as the provision and operation of suitable devices;

g) The transport, loading on to and unloading from the aircraft of food and beverages.

2.2.1.12 Category 12 - Fuel and oil handling.

Comprising -

a) The organisation and execution of fuelling and defueling operations, including the storage of fuel and the control of the quality and quantity of fuel deliveries;

b) The replenishing of oil and other fluids.

Note. - The detailed requirements for Ground Handling application form and compliance checklist are specified in Appendix 1.

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3 Certifications

3.1 Introduction

3.1.1 The purpose of a TAC is to certify that ground handling services operations are authorised by CAAM and in conformance with applicable regulations. The procedures will be utilised by CAAM inspectors for the issuance of a TAC and for the continuing safety oversight and inspection by CAAM of the operations conducted in accordance with the TAC.

3.1.2 During the certification process, CAAM is to be satisfied that the applicant, who will have the ultimate responsibility for the safety of the operation, is eligible for the issuance of a TAC and has the ability and competence both to conduct safe and efficient operations and to comply with applicable regulations. CAAM in addition to assessing the ability and competence of the applicant, will also endeavour to guide the applicant in organisational and procedural matters which will result in a safe operation. Thus, if the objectives of both the CAAM and the applicant are achieved in the certification process, they will have commenced their shared responsibility for safety, regularity and efficiency of operations, which will in turn enhance the public confidence in the operations conducted by the applicant as an operator and holder of a TAC.

3.1.3 At the commencement of the certification process, a CAAM inspector will be appointed as the project manager (PM) and a certification team will be established consisting of qualified and experienced inspectors of the necessary operation specialisations. The applicant will be informed that the PM will be responsible for coordinating all aspects of the certification process and will be the focal point for dealing with all matters between the applicant and CAAM. The safety oversight workload of the PM and team members may need to be adjusted in order that enough time is provided for the certification of a new or renewal ground handling service operator.

3.2 Certification Process

3.2.1 The procedure for the application and granting of a TAC by CAAM will be organised in phases and will take the following sequence:

a) pre-application phase;

b) formal application phase;

c) document evaluation phase;

d) demonstration and inspection phase; and

e) certification phase.

Note. – Each of these phases is briefly introduced below and each will be dealt with in greater detail in this CAGM.

3.2.2 Pre-application phase

3.2.2.1 A prospective GHSP who intends to apply for TAC shall enter into preliminary discussions with CAAM and will be provided with complete information concerning the category of operations which may be authorised, the data to be provided by the applicant and the procedures which will be followed in the processing of the application. It is essential that the applicant has, in this pre-application phase, a clear understanding of the form, content and documents required for the formal application. A standard information package has been developed to provide information to applicants. The applicant shall also be informed of the means to obtain the regulations and related guidance material.

3.2.2.2 CAAM will advise the prospective GHSP on the approximate period of time that will be required to conduct the certification process, subsequent to the receipt of a complete and properly executed application. This advice is of particular importance in the case of new GHSP so that such applicants may avoid undue financial outlays during the certification period.

3.2.2.3 In those cases, where an applicant's organisation is in the formative stage, and the applicant has little or no operating experience, the applicant shall be advised that it may not be possible to judge the organisation’s operating competency until a sufficient period of operational proving, including proving ground operations, have been carried out and that the overall period required to reach a final decision on the application may be protracted and considerable financial outlays unavoidable.

3.2.2.4 If the application is acceptable to CAAM on the basis of the preliminary assessment, the applicant should be encouraged to proceed with preparations for the commencement of operations on the basis that TAC will be issued subject to satisfactory completion of the remainder of the certification procedure.

3.2.2.5 The pre-application phase will also include a parallel assessment of the financial, economic and legal status of the applicant and the proposed operation. The financial viability of the operation may be the most critical factor in reaching a decision on whether or not a TAC should be awarded. The determination of the financial resources of the applicant is usually based on an audit of the GHSP’s assets and liabilities and a thorough evaluation of all financial information and other pertinent data such as proposed arrangements for the purchase or lease of major equipment.

3.2.3 Formal application phase

3.2.3.1 Upon completion of the assessment concerning the financial, economic and legal aspects of the application and after any deficiencies have been corrected, a provisional determination shall be made regarding the general feasibility of the operation. If the operation is found to be provisionally acceptable, the

second phase of the certification process, the formal application phase, can be undertaken.

3.2.3.2 The formal application for a TAC, shall accompanied by the required documentation.

a) Ground Handling Application Form (CAAM/BOP/GH/01);

b) Latest audited financial statement;

c) List of company director(s);

d) List of shareholders(s);

e) A copy of Conditional Approval or a copy of ground handling license;

f) A copy of valid Technical Approval Certificate (TAC) for renewal application;

g) Insurance certificate; and

h) Payment in full.

3.2.3.3 The submission of a formal application is interpreted by CAAM to mean that the applicant is aware of the regulations applicable to the proposed operation, is prepared to show the method of compliance and is prepared for an in depth evaluation, demonstration and inspection related to the required manuals, training programme, operational and maintenance facilities, support equipment, record keeping, dangerous goods programme, security programme, and key management personnel (Accountable Manager and Nominated Post Holders), including the functioning of the administrative and operational organisation.

3.2.3.4 A complete certification schedule will be prepared and shall be agreed by both CAAM and GHSP. The schedule will act as a guide to both for the whole certification process.

3.2.3.5 Based on agreed schedule and timeline, an invoice will be prepared according to MCAR 2016 (Fees and Charges).

3.2.4 Document evaluation phase

3.2.4.1 The document evaluation phase involves the detailed examination of all documentation and manuals provided by the applicant to establish that every aspect required by the regulations is included and adequately covered.

3.2.4.2 In order to facilitate this phase of the certification process, the applicant shall coordinate all aspects of the development of the required documentation with CAAM certification team according to the schedule prepared in 3.2.3.4.

3.2.4.3 Upon successful submission of all documentation and manuals, the evaluation shall take place together with the NPHs.

3.2.4.4 GHSPs shall coordinate and ensure all relevant NPHs are available together with the CAAM certification team for the document evaluation phase.

3.2.4.5 An approval of the manuals and relevant document shall be given once the GHSP satisfy the CAAM requirements.

3.2.5 Demonstration and inspection phase

3.2.5.1 Inspections in this phase will involve on-site base and station facility inspections, inspection of the operational control and supervision facilities and inspection of training programme and training facilities.

3.2.5.2 Demonstrations will involve demonstration of the operational control system, quality management system and safety as well as security of the intended operations and categories.

Note. – Ground Handling Audit Response Format are specified in Appendix 1.

3.2.5.3 Depending on the number of operation categories, this phase will take place at least two days. The GHSP is expected to demonstrate its operational capabilities meeting all requirements as approved under Documentation Evaluation Phase.

3.2.5.4 This phase shall include GHSP respond and closure of the finding(s) and observation (if any). The GHSP shall utilise GH Audit Response Form (CAAM/BOP/GH/02) for this purpose.

3.2.6 Certification phase

3.2.6.1 The certification phase is the conclusion of the certification process when CAAM PM has determined that all certification requirements, both operational and economic, have been completed in a satisfactory manner and that the GHSP shows compliance with the applicable regulations and is fully capable of fulfilling its responsibilities and conducting a safe operation.

3.2.6.2 The culmination of this phase is the issuance of the TAC and its associated operations specifications authorising the conduct of the specified operations.

3.2.6.3 Subsequent to the issuance of a TAC, CAAM will be responsible for continued surveillance and for conducting periodic inspections, to ensure the GHSP's continued compliance with CAAM regulations, authorisations, limitations and provisions of its TAC and operations categories. These periodic inspections are components of a continuing safety oversight programme.

Note. – Self-handler is not required to go through these phases of certification

3.2.7 This certification process will be conducted via TAC Compliance Questionnaires (TAC CQ) which is detailed below.

3.3 TAC Compliance Questionnaires (TAC CQ)

3.3.1 The TAC CQ is a digital audit checklist for TAC developed using the Google Sheet. It is a web-based spreadsheet program that enables the auditee (GHSP) and auditor (CSI) to access the checklist online.

3.3.2 This basic audit management program will enable real-time online collaboration between the two parties working on the same CQ. While the GHSP providing reference and evidence to a particular protocol or questionnaires, the CSI will be able to provide comment and feedback where appropriate in each phase of the certification.

3.3.3 The TAC CQ itemise all the TAC audit scope in series of questionnaires and are derived from the current applicable CAD. Each standards requirement in this document is being categorised in protocols and constructed as questionnaires style for the auditee to answer and provide evidence to each applicable protocol or CQ.

3.3.4 The development of CQ was inspired by one of the ICAO audit tools which is the Protocol Questionnaires (PQ). ICAO contracting states conducted self-assessment on their compliance to the ICAO Standards and Recommended Practices by answering the PQs.

3.3.5 By answering the CAAM version CQ, the GHSP will be able to conduct their own assessment as well and identify any gaps in compliance to the requirements.

3.4 TAC CQ Structure.

3.4.1 TAC CQ is a series of questionnaires and certification elements divided into several protocols. Each protocol will address different compliance requirements for the TAC as stated in the CAD.

3.4.2 TAC CQ is hosted in the Google Sheet platform and has three sections:

f) Section 1 - Regulatory Reference, CQ No., Audit Items and GHSP Guidelines.

g) GHSP Section, Compliance Status, GHSP reference and remarks, evidence for documentation and implementation.

h) CAAM Section, Verification, Remark, Requirements, Findings/Observation Levels and Maximum time for audit response. This part is secured and will not be accessible to the GHSP.

3.4.3 There are twelve (12) protocols in the TAC CQ as listed below:

i) Protocol 0 (INIT) – Initial TAC

j) Protocol 1 (ORG) – Organisation and Management System

k) Protocol 2 (GEN) – General

l) Protocol 3 (CER) – Certifications

m) Protocol 4 (PER) – Personnel Requirements

n) Protocol 5 (MAN) – Manual Requirements

o) Protocol 6 (TRA) – Training Requirements

p) Protocol 7 (GSE) – Ground Support Equipment and Facilities

q) Protocol 8 (FAT) – Fatigue Management

r) Protocol 9 (QAS) – Quality Assurance

s) Protocol 10 (REC) – Records and Reports

t) Protocol 11 (SMS) – Safety Management System

Note 1: Protocol 0 (INIT) is used for the initial application and certification of TAC.

Note 2: Protocol 1 to Protocol 11 will be used for demonstration and inspection phase of the initial certification and renewal or safety audit of a TAC.

3.4.4 TAC CQ Protocols

3.4.4.1 Protocol is identified by the code P and initials of the phase or processes with specific numbering in accordance with the phase of the certification.

3.4.4.2 Protocol 0 (INIT) is used for the initial application and certification of a TAC, which include the whole procedures, processes, documentation and audit.

3.4.4.3 Protocol 0 is further expanded to the following:

a) Protocol 0.1 (PRE) – Pre-Application;

b) Protocol 0.2 (FOR) – Formal Application;

c) Protocol 0.3 (DOC) – Document Evaluation;

d) Protocol 0.4 (DEMO) – Demonstration and inspection; and

e) Protocol 0.5 (CER) – Certification.

Note: In each sub-protocol, elements of the certification processes are expanded further.

3.5 TAC CQ access to GHSP

3.5.1 The google sheet will be managed by TAC Project Team under the Operations Unit of the FOD. The assigned FOI in the TAC Project team will be the administrator to control access for the Audit Team and Operator's Personnel. Access will be provided using an email account to Google Drive. There will be a specific folder for the participating operator and only accessible using the registered email addresses provided by the operator. Each Operator will be provided with a personalized folder in the Google Drive and will not be accessible by other operators.

3.5.2 TAC CQ access to the GHSP will be via registered email address. The TAC CQ administrator will provide the access to GHSP based on the list given through the TAC CQ registration form. The access is via protected TAC CQ Google Sheet link. The link is a dedicated access for a specific GHSP. Email will be sent to the registered person to allow for access the GHSP TAC CQ Google Sheet.

3.5.3 The GHSP may assign the applicable protocol to their NPH or any assign personnel. The GHSP may request from TAC CQ administrator via email for the number of access for the TAC CQ.

3.6 Verification of TAC CQ

3.6.1 One (01) month before the schedule audit date, the GHI assigned to verify the TAC CQ submitted will access the Inspector TAC CQ Google Sheet.

3.6.2 The GHI will verify each applicable TAC CQ answered with the evidence that the GHSP have submitted and provide their remark either the evidence given is in compliant, non-compliant or it would require further validation on site.

3.6.3 Any TAC CQ's that is non-compliant or require further validation, maybe re- assess during onsite audit.

3.6.4 Any TAC CQ with status non-compliant will become either a finding or observation and will be remark in the TAC audit report.

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4 Personnel Requirements

4.1 General.

4.1.1 Each GHSPs must appoint an Accountable Manager, who has corporate authority for ensuring that all services required by customers can be financed and carried out to the standard required by the authority.

4.1.2 Each Self-Handlers and GHSPs must have sufficient number of appropriately qualified staff, who possess adequate knowledge, experience and competence to ensure that all of the requirements of this part are met given the ground service provider's scope of operations and the expected work.

4.1.3 In addition to the key management personnel, each Self-Handlers and GHSPs must provide enough qualified personnel, who possess adequate knowledge, experience and competence to plan, supervise and perform the ground handling services authorised by the CAAM.

4.1.4 Any personnel performing any of the ground handling service functions must hold a valid and appropriate approval such a valid license and training.

4.1.5 Each Self-Handlers and GHSPs must ensure that staff at all levels have been given appropriate authority to be able to discharge their allocated responsibilities.

4.1.6 Each Self-Handlers and GHSPs shall establish a safety documents system for their operational personnel as part of its safety management system.

4.2 Nominated AM

4.2.1 The GHSPs shall appoint AM as approved by the CAAM who has corporate authority for ensuring that all operations and maintenance activities can be financed and carried out to the standard required by the CAAM and any additional requirements defined by the GHSP.

4.2.2 The AM is an essential part of the GHSPs management organisation. The term ‘AM’ is intended to mean the person irrespective of other functions, is accountable on behalf of the organisation, for the implementation and maintenance of an effective operation of GHSP.

4.2.3 Chairman/ Managing Director/ Director General/ General Manager, etc. of the GHSP organisation, who by virtue of his position has overall responsibility (including finance) for managing the organisation.

4.2.4 Delegation of authority - the AM may delegate his authority especially in the scope of finance to senior member(s) of his management team in order to ensure effective and safe operation. The senior member(s) who hold the delegation are known as the Delegated AM.

4.3 Nominated Post Holders (NPH).

4.3.1 The operator shall appoint NPH as approved by the CAAM, who are responsible for the management and supervision of the following areas:

a) Ground Operations - Director of Ground Operations (DGO)/ Ground Operations Manager (GOM) or equivalent;

b) Training Manager or equivalent;

c) Safety Manager or equivalent; and

d) Others as required by the CAAM.

4.3.2 The CAAM shall not approve a nomination which does not meet the requirements.

4.3.3 NPH shall have practical experience and expertise in the application of aviation safety standards and safe operating practices; comprehensive knowledge of CAA 1969, MCAR 2016 and any associated requirements and procedures, operations categories, SMS or Management Manuals where applicable. Minimum of five (05) years management working experience of which at least two years should be from the aeronautical industry in an appropriate position.

4.3.3.1 Ground Operations - Director of Ground Operations (DGO)/ Ground Operations Manager (GOM) or equivalent shall have a practically sufficient knowledge and experience in the area of its intended operations categories.

4.3.3.2 Training Manager or equivalent - shall hold a Train the trainer certificate and have a thorough knowledge of the GHSP categories training concept for ground staff where applicable.

4.3.3.3 Others Post Holders - This requirement shall be determined by the CAAM depending on the size and complexity of the operations. The NPH should have a thorough knowledge and qualification relevant to their duties and responsibilities.

4.4 Combination of NPH's responsibilities

4.4.1 The acceptability of a single person holding several posts, possibly in combination with being the AM as well, will depend upon the nature and scale of the operation. The two main areas of concern are competency and an individual's capacity to meet his responsibilities.

4.4.2 With regards to competency in the different areas of responsibility, there should not be any difference from the requirements applicable to persons holding only one post.

4.4.3 The capacity of an individual to meet his responsibilities will primarily be dependent upon the scale of the operation. However, the complexity of the

organisation or of the operation may prevent, or limit, combinations of posts which may be acceptable in other circumstances.

4.4.4 In most circumstances, the responsibilities of the NPH will rest with a single individual. However, in the area of ground operations, it may be acceptable for these responsibilities to be split, provided that the responsibilities of each individual concerned are clearly defined.

4.4.5 The AM and NPH shall be Malaysian citizens unless local expertise is not available for the safety of its operation. In cases where foreign expertise is required, approval shall be granted in accordance with the local employment terms and conditions and approved by the CAAM.

Note. – The Ground Handling AM and NPH Forms are specified in Appendix 1.

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5 Manual Requirements

5.1 General

5.1.1 All Self-Handlers and GHSPs need to provide the following manuals:

a) Ground Handling Manual (GHM) - The GHM is policy driven and focuses on “what to do”.

b) Ground Operation Manual (GOM) - The GOM is procedure driven, focusing on “how to do”.

c) Ground Training Manual (GTM) – The GTM outlined all the training requirements according to operation categories.

d) SMS Manual – The SMS Manual contain the policy on safety management system of the organisation.

e) ERP Manual - is a compulsory content that should be included in the SMS Manual. ERP Manual can also be in the form of standalone document.

f) Other manuals – if deemed necessary by self-handlers or GHSPs or CAAM.

Note. – The GHM and GOM can be combined into one document provided that both requirements being met.

5.1.2 Each Self-Handlers and GHSPs must develop and maintain a ground handling manual that:

a) Is in a form easy to revise and organised in a manner helpful to the preparation, review and acceptance processes.

b) Is in the English language and signed by the certificate holder's accountable executive/ manager;

c) Revisions submitted are traceable and identifiable in the text;

d) Content includes all aspect of the operation categories; and

e) The manual, including any revision, is approved by the CAAM.

5.1.3 Each Self-Handlers and GHSPs must keep its manuals current at all times and must provide to the CAAM with a complete and most current copy of its approved manuals.

5.1.4 Only electronic copy of the manuals is acceptable by CAAM. All of the approved and current manuals shall be uploaded into CAAM drive.

5.1.5 Each Self-Handlers and GHSPs shall nominate a person-in-charge (PIC) to upload and maintain own folder in CAAM drive.

5.2 Guidance for the preparation of manuals

5.2.1 This guidance has been developed to provide instruction on the mechanics of preparing manuscripts for the ground handling service provider manuals.

5.2.2 Ground handling service provider manuals establish criteria and guidance for the design of facilities for the CAAM. In preparing ground handling service providers manuals, the author should recognise the role of regulations in establishing policy and the role of specifications in establishing contract requirements.

5.2.3 Ground handling service provider manuals shall be consistent with established practices of contract administration, but should not attempt to establish detailed contract requirements or procedures.

5.2.4 Ground handling service provider manuals shall be consistent with teaching methods, but should not be devised solely as teaching textbooks.

5.2.5 Ground handling service provider manuals shall permit limited innovation on selected projects, but should not advocate broad innovation on all projects.

5.2.6 The author shall also recognise that a ground handling service provider manual published must comply with CAAM requirements regarding format, coordination, publication, and distribution.

5.2.7 A system of amendment and revision shall be established:

a) Details of the person(s) responsible for the issuance and insertion of amendments and revisions;

b) A record of amendments and revisions with insertion dates and effective dates;

c) A statement that handwritten amendments and revisions are not permitted, except in situations requiring immediate amendment or revision in the interest of safety;

d) A description of the system for the annotation of pages or paragraphs and their effective dates;

e) A list of effective pages or paragraphs;

f) Annotation of changes (in the text and, as far as practicable, on charts and diagrams);

g) Temporary revisions; (if applicable)

h) A description of the distribution system for the manuals, amendments and revisions.

5.3 Style and Format.

5.3.1 Writing Style - The paramount consideration in preparing a technical publication is its technical content. This shall be presented in language free of vague and ambiguous terms, using the simplest words and phrases which will convey the intended meaning. All essential information must be included, either by direct statements or by reference. For maximum clarity and usefulness, there must be consistency in terminology within the same publication or series of publications.

5.3.2 To the extent that the nature of the data being presented will allow, there must be consistency of organisation among like-type publications. Sentences must be short and concise. Punctuation shall be used in a manner which aids in reading and prevents misreading. Well planned word order requires a minimum of punctuation. When extensive punctuation is necessary for clarity, sentences will be rewritten. Technical words must be used only when no other wording will convey the intended meaning. Quotation marks and underscoring must not be used for emphasis.

5.3.3 Level of writing used in technical manuals will be determined at the time of application of a technical content specification. Technical publications published in accordance with this guidance will make no reference to age, sex, race or national origin. The style of writing shall be appropriate for the user and for the purpose intended. "Will" and “shall” is used to indicate mandatory requirements. "Can" and "may" are used to permit a choice or express a guideline. "Should" is advisory and indicates a desirable procedure. Personal pronouns (I, you, we) are not to be used. Neutral language will be used when either male or female is intended.

5.4 Abbreviations and Acronyms

5.4.1 Use of abbreviations and acronyms will be held to a minimum and will be defined the first time they appear in a chapter or manual. Use abbreviations and acronyms only for terms that appear repeatedly. As an alternative, abbreviations and acronyms used in the manual may be listed in a separate paragraph or in a glossary.

5.5 Units of Measure

5.5.1 The International System of Units (SI) will be used when the inch pound (IP) “imperial system units do not control the subject matter, text, tables, figures, formulas, and numeric example problems, except where metrication conflicts with codes and standards.

5.6 References

5.6.1 Reference to other manuals or other parts of the same manual will be kept to a minimum and will be made only when necessary to help users better understand

the subject. Excessive references make a manual difficult to use. When references are needed:

a) Use only references that are readily available and relevant to the user;

b) Make references specific. Do not use general references, such as "current directives," "Civil Aviation Directives," "existing regulations" and "pertinent publications.";

c) Agency or command publications and forms generally are not valid references;

d) Publications cited in the text must be listed in a reference paragraph or appendix;

e) All references shall be current or latest publication.

5.7 Organisation

5.7.1 A manual may be divided to improve readability; for example, parts, chapters, sections, paragraphs, and subparagraphs (to the third subdivision, which is a letter enclosed in parentheses). When subdividing an element, at least two of the same subdivision must be used.

5.7.2 All parts, chapters, sections, and paragraphs must have a title (except for paragraphs in an appendix, which need not be titled). Subparagraphs may or may not be titled. However, if one subparagraph has a title, all subparagraphs within that paragraph at the same level must have titles. Keep organisation simple. A small ground handling service provider manual may consist of numbered paragraphs with no other subdivisions.

5.8 Table of Contents

5.8.1 At the beginning of a manual, list parts, chapters, sections, paragraphs, appendixes, bibliography, glossary, and index when included in the manual. When preparing the table of contents list the title and number of each part, chapter, section, paragraph, and appendix exactly as given in the text and in the same order.

5.9 Index

5.9.1 An alphabetical index will be prepared only for complex manuals. The index will not be repetition of paragraph titles; an index is a list of important subjects that the users are most likely to look for and where those subjects are covered in the manual.

5.10 List of Illustrations

5.10.1 If necessary and for ease of reference, technical manuals containing ten or more illustrations (including charts and graphs assigned figure numbers) will have a list of illustrations following the table of contents, and showing the figure number and title of each figure.

5.11 List of Tables

5.11.1 If necessary and for ease of reference, technical manuals containing ten or more tables will have a list of tables following the list of illustrations, and showing the table number and title of each table.

5.12 Forms

5.12.1 Avoid forms or data sheets that look like forms. Established forms may be referenced by their unique form number/ register. New forms require approval which will usually delay publication of the ground handling service provider manual.

5.13 Copyright Releases

5.13.1 Copyright releases will be provided for any copyrighted materials used in the ground handling service provider manual. Copyright credits shall be prepared as part of the figure or table to which they pertain and not as part of the title since this provides less chance of the figure or table being used without proper credit. When a manual includes both copyrighted material (figures and/or tables) and non-copyrighted material, it is usually desirable to also identify the source of the non-copyrighted material to assure all materials have been properly evaluated.

Note 1 – The Ground Handling manual components checklist is specified in Appendix 1.

Note 2 – The list of Ground Handling mandatory manuals is specified in Appendix 3.

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6 Training Requirements

6.1 General.

6.1.1 The objective of training is to ensure that personnel are equipped with the requisite skills, knowledge, competencies and attitude to complete their tasks in a safe and efficient manner.

6.1.2 To ensure safety, quality and proficiency on the airside, personnel shall minimally cover all the safety standards and procedures stated in the safety manual (SM) which are relevant to the job scope of the GHSP.

6.1.3 Additionally, general safety guidelines and human factors topics such as communication, stress, fatigue and situational awareness should be included.

6.1.4 Each ground handling service provider must:

a) Establish and implement a training program that consists of initial and recurrent training, for all staff. A training syllabus shall be approved by CAAM;

b) The training may be provided by the approved training organisation (ATO) or by an entity acceptable to the CAAM;

c) Ensure that personnel employed (direct hired or via vendors though manpower supply arrangement) by the ground handling service provider are adequately trained as per 6.1.2 (a) to perform assigned duties;

d) When training is provided internally, adequate training facilities and properly qualified instructors approved by CAAM for the training required by this section;

e) Ensure that the training manual and training material keeps current with respect to the latest requirements in the applicable technical and training standards;

f) Each GHSP must verify, before any person is assigned to perform ground handling service functions, that all required mandatory and functional training has been completed by the person and that the person has successfully passed an operational assessment and was believed to be competent to exercise the responsibilities of the job function(s) authorised.

6.1.5 For effectiveness of the training programme, all initial trainings shall be conducted in a classroom environment with presence of the trainer or instructor. A maximum of 20 participants are allowed for each classroom session.

6.1.6 A refresher or recurrent training maybe be conducted in a classroom environment, virtual or computer-based learning or any other method deemed appropriate to deliver the content of the training.

6.1.7 When DG training is required, the GHSP shall comply to the DG Training Requirement Matrix as shown in Appendix 4.

Note. – Details requirement for DG training can be found in the Civil Aviation Directive – 18 (National Transport of Dangerous Good Programme)

6.2 Training Programme Content

6.2.1 The following mandatory training programme applies to all personnel performing the ground handling functions:

a) Safety Management System (SMS) Awareness;

b) Aviation Security (AVSEC) Awareness;

c) Human Factors;

d) Airside Safety;

e) Emergency Response Plan (ERP).

6.2.2 Each Self-Handlers and GHSPs also required to establish a functional training syllabus conform to operation categories. Guidelines on recommended functional training for all operation categories can be found in Appendix 2.

6.2.3 All functional training syllabus shall be incorporated in the GHSP training manual and approved by CAAM.

6.2.4 As a guideline in developing mandatory training syllabus, the following safety training programme applies to personnel performing the following functions on the ramp:

a) Refuelling;

b) Ground handling operations;

c) Operation of vehicles and GSE e.g. tractors, belt loaders;

d) Supervision of ground handling operations.

6.2.5 The safety training programme shall have topics covering all the following but not limited to.

a) Safety Regulations

1) Airside regulations;
2) Safe working and operating procedures.

b) Hazards

1) Aircraft and vehicle movements;
2) Jet blast;
3) Aircraft fuelling and fuel spills;

4) Working at height;
5) Adverse weather conditions.

c) Human factors

1) Communications;
2) Stress;
3) Fatigue;
4) Situational awareness.

d) Airside Markings and Signage

1) Roadways;
2) Aircraft parking stands.

e) Foreign Object Debris

1) FOD detection;
2) FOD prevention;
3) FOD removal.

f) Personal Protection Equipment (PPE)

1) Hi-visibility safety vest;
2) Protective gears.

g) Emergency Situations and Reporting Procedures

1) Fuel/hydraulic spillage;
2) Vehicular incident;
3) Aircraft incident.

6.2.6 Functional safety and ground training programme, personnel shall as appropriate to their job function, receive training on the following applicable subjects:

a) Aircraft Handling and Loading

1) Operating procedures;
2) Aircraft movement operations;
3) Securing of load, ULD, pallet/container dollies and baggage trolleys;
4) Docking and operation of equipment.

b) Aircraft Ground Movement

1) Operating procedures;
2) Aircraft movement operations;
3) Operation of equipment including (dis)connection procedures;
4) Airfield layout;
5) Standard phraseology.

c) Aircraft Docking Guidance System/Marshalling

1) Operating procedures;

2) Use of Aircraft Docking Guidance System
3) Hand signals

d) Refuelling

1) Operating procedures;
2) Safety during aircraft refuelling and defueling.

6.2.7 Training should be a combination of theoretical and practical skills training to verify the learners understanding of, and ability to complete, the task being trained.

6.2.8 There shall be an evaluation at the end of the training for the following ground handling activities:

a) Aircraft docking guidance system/ manual marshalling;

b) Operation of passenger loading bridge;

c) Operation of motorised ground support equipment used for aircraft handling and loading;

d) Aircraft pushback;

e) Aircraft towing;

f) Aircraft fuelling.

6.2.9 There shall be an evaluation at the end of all mandatory and functional trainings (where appropriate).

6.3 Refresher Training Requirements

6.3.1 The Self-Handlers and GHSPs shall clearly state down the competency which requires refresher training. There shall be a system and process to track and make sure that all staff attend the required refresher training on time. If the validity is lapsed, an initial training shall be conducted instead of recurrent training.

6.3.2 The Self-Handlers and GHSPs shall have a system and process to track all the staff training record and make sure that only trained staff are deployed for operations. This requirement also applies for the contractors engaged by the Self-Handlers and GHSPs. The Self-Handlers and GHSPs shall be able to demonstrate that they have oversight on the contractors training and also make sure that only trained contractors are being deployed for operations.

6.4 Documentation

6.4.1 The GSP must be able to demonstrate that the relevant standard operating procedures have been suitably translated into training syllabus and training materials for effective delivery to the staff. The training materials should also include risk communication components whenever applicable, that is to say, explain to staff the risk and hazards involved when certain procedures or steps are not being followed.

6.4.2 There shall also be a system for updating and documentation control of training material. Changes to processes or equipment shall be communicated to relevant personnel and appropriate additional information and training shall be delivered.

6.4.3 Training records - All training programmes must be documented including:

a) Description of the content of the training programmes;

b) Induction, “on the job” and refresher/recurrent courses;

c) Records of completed training;

d) Schedule of planned training courses.

6.4.4 The Self-Handlers and GHSPs shall have a system in place for the retention of training records for a period stipulated by the CAD 6010.

6.4.5 All training, assessments and competencies shall be documented in a timely and consistent manner.

6.4.6 The record shall identify the date when the particular subject matter has been delivered to the learner.

6.4.7 Training content and records shall be made available for review by CAAM when required.

6.5 Competency of Trainer, Assessor, Buddy for the On-Job Training

6.5.1 Theoretical and practical skills training shall be conducted by personnel who have demonstrated the skills to deliver the training effectively, and who have competence (knowledge, skill and experience) in the subjects to be instructed.

6.5.2 The qualified personnel (trainer/ instructor) shall meet the followings:

a) hold a valid Train the Trainer certificate;

b) minimum of 5 years’ experience in ground handling;

c) passed initial assessment by CAAM;

d) passed re-assessment by CAAM.

6.5.3 Assessments shall be conducted by persons who have appropriate knowledge, skills and experience in the functions being assessed.

6.5.4 For training which has an on-the-job training (OJT) component, the Self-Handlers and GHSPs shall also establish clear criteria in the selection of the OJT mentor, trainer and assessor.

6.5.5 All Trainers shall get approval or endorsement from CAAM and the trainer assessment shall be conducted upon request by the GHSPs either through actual class or simulation class.

6.5.6 GHSPs shall maintain an appropriate number of trainers according to the operational requirements which each approval valid only for 3 years.

Note. – An approved/ endorsed trainer shall only deliver the training within the specified ground handling service provider organisation.

6.6 Training for Aircraft Docking Guidance Systems (ADGS)/Manual Marshalling

6.6.1 Initial training of ADGS and manual marshalling shall comprise of both theory and practical components.

6.6.2 Personnel shall have experience operating the ADGS and conducting manual marshalling on live flights under trainer or mentor supervision before operating independently.

6.6.3 Personnel who are qualified to operate the ADGS and conduct manual marshalling shall undergo refresher training every two (2) years. All training records shall be retained by the Self-Handlers and GHSPs, and provided to CAAM upon request.

6.6.4 The Self-Handlers and GHSPs shall establish measures to ascertain the competency of new personnel and document the measures.

Note. – The detailed requirements for Ground Handling mandatory and functional training are specified in Appendix 2.

6.7 Syllabus Requirements

6.7.1 The self-handlers and GHSP shall have relevant training syllabus and training materials.

6.7.2 Training syllabus and training materials shall conform to requirement as per CAD6010 and CAGM6010.

6.7.3 The syllabus for ground handling is categorised into two.

a) Mandatory Training;

b) Functional Training.

6.7.4 Both mandatory and functional training shall have initial and recurrent training modules. The details training syllabus shall conform to Appendix 3 CAGM6010.

6.7.5 Mandatory training modules shall conform to Appendix 3 of CAGM 6010. Minimum requirements for mandatory training as shown in Table 6-1 below:

	Modules	Hours (minimum)	
		Initial	Recurrent
1	Safety Management System (SMS) Awareness	8.0	4.0
2	Human Factor	8.0	4.0
3	Airside Safety	4.0	4.0
4	Emergency Response Plan (ERP)	8.0	8.0
5	Aviation Security (AVSEC) Awareness	4.0	4.0

Table 6-1 – Mandatory Training Syllabus

6.7.6 Functional training modules shall conform to Appendix 3 of this CAGM. A self-handler and GHSP may include all or part of functional training as shown in Table 6-2.

6.7.7 Functional training modules shall be classified according to respective ground handling categories. The details category of ground handling services can be found in Para 2.2 of CAD 6010. In brief, the ground handling categories are listed below.

a) Category 1 - Ground administration and supervision.

b) Category 2 - Passenger handling.

c) Category 3 - Freight and mail handling, (Landside).

d) Category 4 - Aircraft services.

e) Category 5 - Aircraft maintenance.

f) Category 6 - Flight operations and crew administration.

g) Category 7 - Surface transport.

h) Category 8 - Catering services.

i) Category 9 - Baggage handling.

j) Category 10 - Freight and mail handling, (Airside)

k) Category 11 - Ramp handling.

l) Category 12 - Fuel and oil handling.

Note. – Training modules for Category 5 shall be approved by Airworthiness Division of CAAM through Part 147 approval.

	GH Category 1	Hours (minimum)	
	Modules	**Initial**	**Recurrent**
1	Company Induction Program	As per approved GHSP Training Manual	As per approved GHSP Training Manual
2	Station Management		
3	Basic Ground Operations		
4	Load Control including Weight & Balance		
5	Dangerous Goods (Category 8 & 10)		
6	First Aid Awareness		

Table 6-2 (a) – Category 1 Functional Training Syllabus

	GH Category 2	Hours (minimum)	
	Modules	**Initial**	**Recurrent**
1	Dangerous Goods (Category 9)	As per approved GHSP Training Manual	As per approved GHSP Training Manual
2	Passenger Services		
3	Special Passenger Handling		
4	Aircraft Door Handling		

Table 6-2(b) – Category 2 Functional Training Syllabus

	GH Category 3 & 10	Hours (minimum)	
	Modules	**Initial**	**Recurrent**
1	General Ramp Safety	As per approved GHSP Training Manual	As per approved GHSP Training Manual
2	Safety Instruction for Operating Ground Support Equipment (GSE) on the Ramp		
3	Basic Cargo		
4	Dangerous Goods (Category 6, 7, 8 & 10)		
5	Weight & Balance (Cargo)		
6	Perishable Regulations		
7	Forklift Handling		
8	Tractors Handling		
9	Cranes Handling		
10	Boom lifts Handling		

Table 6-2(c) – Category 3 & 10 Functional Training Syllabus

	GH Category 4	Hours (minimum)	
	Modules	**Initial**	**Recurrent**
1	General Ramp Safety	As per approved GHSP Training Manual	As per approved GHSP Training Manual
2	Safety Instruction for Operating Ground Support Equipment (GSE) on the Ramp		
3	Aircraft Cleaning (External & Internal)		
4	Aircraft Lavatory Servicing		
5	Aircraft Potable Water Servicing		
6	Air-conditioner external unit		

Table 6-2(d) – Category 4 Functional Training Syllabus

	GH Category 6	Hours (minimum)	
	Modules	**Initial**	**Recurrent**
1	General Ramp Safety	As per approved GHSP Training Manual	As per approved GHSP Training Manual
2	Navigation		
3	Air Traffic Management		
4	Meteorology		
5	Weight & Balance		
6	Flight Planning & Monitoring		
7	Communication		

Table 6-2(e) - Category 6 Functional Training Syllabus

	GH Category 7	Hours (minimum)	
	Modules	**Initial**	**Recurrent**
1	General Ramp Safety	As per approved GHSP Training Manual	As per approved GHSP Training Manual
2	Airside Driving		
3	Defensive Driving		
4	Meteorology		
5	Customer Services (specific to GHSP handling private aircraft)		
6	Dangerous Goods (Category 8)		

Table 6-2(f) - Category 7 Functional Training Syllabus

	GH Category 8	Hours (minimum)	
	Modules	**Initial**	**Recurrent**
1	Food Safety Assurances Program	As per approved GHSP Training Manual	As per approved GHSP Training Manual
2	Basic Food Hygiene and Handling		
3	Food Handler Training Course		
4	GMP/ HACCP/ Halal Awareness Training		

Table 6-2(g) - Category 8 Functional Training Syllabus

	GH Category 9	Hours (minimum)	
	Modules	**Initial**	**Recurrent**
1	General Ramp Safety	As per approved GHSP Training Manual	As per approved GHSP Training Manual
2	Basic Baggage Handling		
3	Airside Driving		
4	Defensive Driving		
5	Dangerous Goods (Category 8)		

Table 6-2(h) - Category 9 Functional Training Syllabus

	GH Category 11	Hours (minimum)	
	Modules	**Initial**	**Recurrent**
1	General Ramp Safety	As per approved GHSP Training Manual	As per approved GHSP Training Manual
2	Safety Instruction for Operating Ground Support Equipment (GSE) on the Ramp		
3	Ground to Cockpit Communication		
4	Dangerous Goods (Category 8)		
5	Airside Driving		
6	Defensive Driving		
7	Aircraft Pushback		
8	Aircraft Towing		
9	Aircraft Marshalling		
10	GPU Handling		

Table 6-2(i) - Category 11 Functional Training Syllabus

	GH Category 12	Hours (minimum)	
	Modules	**Initial**	**Recurrent**
1	General Ramp Safety	As per approved GHSP Training Manual	As per approved GHSP Training Manual
2	Airside Driving		
3	Defensive Driving		
4	Product Inspector Course or equivalent		
5	Fire Safety		
6	Operation Procedures Training		
7	Equipment Serviceability and Maintenance training		
8	Aerodrome Familiarisation		

Table 6-2(j) - Category 12 Functional Training Syllabus

6.7.8 The self-handler and GHSP shall establish procedures, and compile all written, oral, and practical performance assessments data of the trainee for all of the above syllabus.

7 Ground Support Equipment and Facilities

7.1 General

7.1.1 A Ground Support Equipment (GSE) is any piece of mobile or fixed equipment, whether or not powered or self-propelled, purpose designed, built and used for ground handling, servicing or field maintenance of aircraft on the ramp.

7.1.2 The Self-Handlers and GHSPs shall have a maintenance programme that ensures that GSE remains safe to operate and in good condition. The Self-Handlers and GHSPs shall have a system in place that prevents operation of any equipment that is not deemed to be in a safe and serviceable condition.

7.1.3 If the Self-Handlers and GHSPs outsources the maintenance functions to external organisations, the Self-Handlers and GHSPs retains overall responsibility of such functions, and must demonstrate processes for monitoring the applicable external organisations.

7.2 Facilities.

7.2.1 Each Self-Handlers and GHSPs shall:

a) provide facilities for its personnel to properly perform the ground services for which it is authorised in its operations category;

b) have suitable space and sufficient infrastructure for the staging, storage and protection of ground support equipment relevant to its operations and for the build-up and breakdown of ULDs, where applicable;

c) have a maintenance program and documented GSE maintenance control system including records of all maintenance and inspection;

d) segregate and appropriately identify unserviceable ground support equipment from serviceable equipment;

e) have the means and procedures in place for fire protection and prevention on the airside and for addressing spillage of fluids;

f) have a suitable security system to ensure all GSE and products are not to be tempered with;

g) ensure compliance to other regulatory bodies.

7.2.2 Facilities for personnel must include the following:

a) Sufficient work space preferably inside the airside of the aerodrome. Where this is not possible, the work space shall be made available within the aerodrome vicinity where the respond time for operation and emergency situation is acceptable;

b) Segregated work areas enabling environmentally hazardous or sensitive operations to be done properly and in a manner that does not adversely affect other activities;

c) Sufficient office equipment to support the safe operation;

d) Ventilation, lighting, and control of temperature, humidity, and other climatic conditions sufficient to ensure personnel perform duties to the standards required;

e) Ventilated rest areas for operational staff working on shift.

7.2.3 For all facilities operated by a ground service provider which are not provided by the aerodrome operator, the GHSP must present evidence of the facility's certification or/and approval by the pertinent authority or aerodrome operator regarding its compliance with the applicable product safety, fire safety, health & safety, hygiene and security requirements.

7.3 Maintenance Programme

7.3.1 The Self-Handlers and GHSPs shall ensure that the maintenance programme includes the following:

a) Preventive maintenance that is conducted minimally in accordance with OEM requirements;

b) Corrective maintenance;

c) Predictive maintenance such as specific inspection and recertification of the GSE.

7.3.2 Periodic checks/servicing/inspection shall be performed minimally in accordance to the schedule recommended by OEM, including necessary servicing and/or replacement of components.

7.3.3 The Self-Handlers and GHSPs shall have in place a defect reporting process, including corrective action plans to address GSE faults.

7.3.4 The Self-Handlers and GHSPs shall ensure that maintenance records/documentation are retained according to the stipulated period as laid in the CAD6010.

7.4 Treatment of Unserviceable GSE

7.4.1 The Self-Handlers and GHSPs shall ensure that unserviceable GSE is removed from operations for repair and/or maintenance. The unserviceable GSE shall be indicated with "out of service" markers to ensure it is not being used for operations.

7.4.2 To comply with 7.4.1, a system shall be established to prevent unauthorised usage of "out of service" GSE.

7.5 Fire Protection

7.5.1 Fire is one of the most dangerous threats to an aircraft. Self-Handlers and GHSPs shall ensure that GSEs are equipped with fire protection systems.

Note. – Operators shall not leave equipment unattended with engine running (with the exception of GPU).

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8 Safety in Ground Handling

8.1 General

8.1.1 Safety must be a priority for any organisation involved with aviation. The information contained in this guidance material if followed, should lead towards an acceptable level of safety to aircraft, infrastructure, equipment and personnel.

8.1.2 Ground damage and staff injuries have significant direct and indirect costs and cause major disruptions in operations. In addition, undetected or unreported errors when servicing the aircraft can affect its load and balance, aerodynamics, airworthiness or performance. These errors occur much less frequently, but their consequences can be catastrophic.

8.1.3 Self-Handlers and GHSPs often calculate the cost of damage and repair to an aircraft, while air operators add lost revenue, compensation and delay. There is also the cost of personal injury and fatalities to ground personnel.

8.1.4 Despite considerable efforts by air and aerodrome operators, GHSPs and regulators, serious accidents and incidents still occur. This suggests that there are still many areas of improvement needed. Some of the main causal factors are:

a) Staff issues which include effectiveness & quality of training, shortages, low wages, unattractive working conditions, high turnover, absenteeism, excessive overtime and fatigue;

b) Continued competition between service providers for ground handling contracts driven by air operators looking for the lowest costs in third party operations. This results in Self-Handlers and GHSPs struggling to maintain appropriate staffing levels;

c) Difficult working conditions, including apron congestion with equipment and vehicles, and operations at night or in poor weather conditions;

d) A conflict between efficiency (such as “on-time departure” performance) and the use of safe working practices;

e) Pressure on staff resulting from increasingly short turnaround times;

f) An underdeveloped safety culture within organisations;

g) Issues arising from maintenance and operability of ground support equipment (GSE), including aging equipment.

8.1.5 Many incidents can occur in the brief period before aircraft departure when few safety nets exist and there are commercial pressures for on-time departures. Reports from industry show a significant percentage of ground damage and loading errors are “found on arrival” indicating a large number of aircraft are dispatched with unreported damage or potential weight and balance errors. Increasing economic pressure faced by industry to cut costs can lead to a lack of

quality controls, unsafe working practices, reduced staff training and lower quality of GSE maintenance. The outsourcing of ground handling operations, while providing some financial efficiencies, should not be seen by the air operator as a way of transferring risk and responsibility.

8.1.6 A Self-Handlers and GHSPs has to strike a balance between profitability and safety, therefore a balance between service performance and safety performance needs to be achieved. It should never be the case that safety procedures are broken to achieve service targets. This is developed further in the Safety Management Manual (Doc 9859) through safety risk management and the concept of “safety space”.

8.1.7 The ability to provide ground handling services in a safe manner is also challenged by an evolving environment, in particular due to aircraft, which are increasing in size and number, often requiring more, larger or complex GSE. Available space on the apron is often constrained and allotted time for turnaround ever more reduced. The Self-Handlers and GHSPs are also having to evolve quickly to cater for changing operator business models.

8.1.8 A significant change over the past few years has been the propensity for ground handling to be outsourced by the air operators. Globally, it is estimated 75 per cent of all ground handling operations are outsourced to third party handlers.

8.1.9 Ground handling competition has been a very important issue over the past few years leading to both positive and negative developments. Competition has without a doubt reduced costs and provided air operators who outsource their ground handling operations with improved choice of provider. However, there has been continued pressure on Self-Handlers and GHSPs to reduce the costs of their operations. The desire for GHSP sustainable profitability while delivering services to air operators, often struggling with their own profitability, has resulted a difficult operating environment. There appears to be a drive from air operators to negotiate for the lowest handling fees possible while the ground handling operators attempt to secure the critical mass to survive and invest for the future. Ultimately, there needs to be a balance between competition, cost efficiency and safety.

8.2 Safety Culture in Ground Handling

8.2.1 Annex 19 highlights the need for States and service providers to promote a safety culture. For a Self-Handlers and GHSPs this should be an expression of how safety is perceived, valued and prioritised by management and personnel.

8.2.2 A safety culture is a set of values, behaviours and attitudes regarding safety issues shared by every member at every level of the organisation. A safety culture should be the normal, everyday operating mode and part of everyone’s behaviour, not optional or discretionary. Good indicators of a positive safety culture are:

a) a positive attitude and awareness of all staff towards known hazards, safety risk management and compliance processes with agreed control and mitigation measures;

b) an environment which allows continuous improvement and safety enhancements, shown by the capacity to learn from accidents, incidents, near misses and other safety indicators;

c) a willingness for management, supervisors and staff to discuss safety and operational issues and an ease of transmitting safety-related communications across the organisation; and

d) continuously evaluating safety-related behaviours across the organisation shown by positive supervision and oversight of operations, which works with staff to identify and develop safe working practices.

8.2.3 The greater the number of employees that show these behaviours and characteristics the better will be the safety culture. Safety culture should be meaningful to Self-Handlers and GHSP's personnel and is often reflected in how they think, talk and act. The maturity of a safety culture will have a direct impact on safety performance.

8.2.4 If employees believe safety is not important then non-adherence to standard operating procedures (SOPs), corner-cutting and workarounds will result. A safety culture should exist at all times, not just when a manager or a regulator is watching. It has been suggested that a safety culture is an intangible concept whose true worth is only perceived by its absence.

8.2.5 Self-Handlers and GHSPs vary considerably in their size, organisational makeup and service provision. There is also a wide spread of large private GHSPs operating in multiple States, others that are State-owned or operated by an aerodrome, and some that are small and only operate in one State. This diversity will affect the safety culture maturity globally. There are significant national cultural differences affecting how an individual is perceived in society. The organisational culture may therefore be significantly affected by the national culture and this may provide some difficulties for multinational companies trying to develop an SMS.

8.2.6 Care needs to be taken when operating with a multicultural workforce as safety risk perception, communication, job status and leadership style will vary. Similarly, reporting culture varies widely with many cultures not adhering to or using an open reporting or just culture system. If Self-Handlers and GHSPs staff avoid reporting for fear of losing their jobs then valuable data and information on safety will be lost. This is one of the main barriers to operating an open reporting or "just culture" system. A just culture is one that is fair and encourages open reporting of accidents and incidents. However, it does not tolerate deliberate harm and wilful damaging behaviour.

8.2.7 A poor safety culture would be represented by an organisation that, in effect, encouraged non-compliance with safe working practices or SOPs. Poor safety culture is often reflected in poor performance in other areas such as training, supervision, and vehicle and equipment management. A significant number of accidents can be traced to unsafe behaviours. Poorly designed equipment or operations, poor systems and poor working conditions can all encourage unsafe behaviours.

8.2.8 As with SMS, the promotion of a safety culture is critical and begins with the accountable executive. It is transmitted through agreed policies, training and promotional material. Safety culture maturity and effectiveness can be assessed through various methodologies including, but not limited to, interviews, staff surveys and observations.

8.3 Safety Management in Ground Handling

8.3.1 An SMS provides a business-like approach to safety. It should therefore be seen as a business tool helping Self-Handlers and GHSPs manage risks and making the right business decisions. The “ownership” of safety processes belongs with an organisation’s management. Senior managers are in the position to weigh safety risks against the cost of mitigation, and where priorities and resources are allocated. Managing safety does make good business sense in aviation and many good practices are also applicable to good business practice.

8.3.2 The use of SMS and its principles provide accountable executives and operational managers a method for managing safety resulting in a set of beliefs, systematic practices and procedures for mitigating and monitoring safety. The implementation of SMS in aviation is relatively new; however, the principles have been in use by other hazardous industries, such as petrochemicals and nuclear, for much longer.

8.3.3 Accidents, incidents and occurrences will still happen even with an SMS. However, the system will assist an organisation to be proactive as well as reactive in controlling known risks using a framework or structure that can improve the effectiveness of its operation. The use of safety management principles has proven its efficiency in safety- critical industries including aviation.

8.3.4 They contribute to preventing accidents and incidents, and have proven to have a positive cost-benefit ratio considering the financial impact these events could have. Key to the success of an SMS is the full involvement by accountable executives and senior managers. These senior positions usually control budgets and can allocate resources to safety. Accountability not only lies with senior management for their own organisation but also the safety assurance of third parties. SMS can help with this by ensuring safety is a consideration in all third-party contracts.

8.3.5 There are a number of key principles that need to be applied for a ground handling service provider to benefit from the investment in safety management. Principles

highlighted by safety professionals and organisations globally as key components of a world class system include:

a) Effective policies and SOPs developed with the involvement of the GHSP's personnel and relevant stakeholders. Successful organisations have used a systems approach to safety management by using and adapting industry standards and best practice guidance. An integrated approach across safety, quality, security and environment allows processes and values to become embedded in the way a company does business;

b) A proactive method of hazard identification and safety risk assessment/management. Many of the hazards associated with ground handling that have been identified are known to industry. It is critical that a GHSP provides appropriate safety risk assessment and mitigations to these hazards and makes them known to staff. It is important to note that some of the hazards encountered when working on the apron are generated by third parties or other organisations working as part of aircraft turnarounds;

c) Competent and trained personnel with regular refresher programmes. An initial and ongoing training programme allows an organisation to strengthen the skills each employee needs to carry out their job. Further development and "refresher" training brings all personnel to a higher level of competence, skills and knowledge;

d) A strong process of monitoring and reviewing activities and change management. Business models are constantly evolving and changing, and operational changes;

e) Can result in new hazards being generated and risk assessed. Hazards from change can occur, for example, from the introduction of new handling equipment, air operators changing aircraft type or the introduction of seasonal personnel;

f) Creating a positive safety culture – key to this is the development and acceptance of an open reporting culture with appropriate non-disciplinary policies that allow lessons to be learnt from accidents and incidents. A positive safety culture allows senior management to get a true picture of what is going on with their operation and to better understand the risks;

g) Inspiring personnel through a safety vision – safety policies and vision or mission statements need to be brought to life so that they become an ingrained part of everyday work. This includes emphasizing to all staff that safety matters and their input is needed to support safety objectives and incident reporting processes;

h) Leading safety forums – it is vital that the accountable executive leads the highest-level safety meetings. It is also important to be seen at all safety meetings, regardless the level, to show support and promote the safety culture.

8.3.6 Appendix 2 of Annex 19 highlights four components and twelve elements as the minimum requirements for SMS implementation. The degree and depth of detail for each element will depend on the size and complexity of the individual GHSP and the concept of scalability should be applied. The framework is described in Table 1-2 below.

Components (4)	Elements (12)
1. Safety policy and objectives	Management commitment Safety accountabilities and responsibilities Appointment of key safety personnel Coordination of emergency response planning SMS documentation
2. Safety risk management	Hazard identification Safety risk assessment and mitigation
3. Safety assurance	Safety performance monitoring and measurement The management of change Continuous improvement of the SMS
4. Safety promotion	Training and education Safety communication

Table 1-2. Annex 19 framework for an SMS

8.3.7 The safety management processes implemented by a GHSP should be commensurate with the size of the provider and the complexity of its services. The principles of good SMS apply to all organisations, companies and operators irrespective of their size and complexity of operation. The four components and twelve elements of the ICAO SMS framework can be used appropriately for both large and small organisations alike.

8.4 Management systems

8.4.1 As advocated in this manual, the implementation of a safety management system in the GHSP's organisation is essential to address safety risks, reduce ground damage and personal injuries. When implementing safety management procedures, consideration should be given to interfaces with other requirements such as quality, performance, security, environmental or occupational health, and

safety management. To a certain extent, implementation can be combined; a number of organisations already operate with an integrated management system.

8.4.2 Other management systems that should be established at the corporate level and implemented throughout the network include documentation control, personnel training and asset/equipment procurement and maintenance.

8.4.3 An independent assessment of the Self-Handlers and GHSP's corporate management systems and oversight capabilities should be conducted on a regular basis. The assessment should also verify that ground operations are conducted throughout the network in accordance with corporate policies and procedures, and that local requirements are met.

8.5 Importance of Standard Operating Procedures

8.5.1 SOPs provide instructions to personnel on the "who does what, when and how" for the safe completion of their tasks. SOPs are mitigations to hazards and reduce safety risks; they are a safety enhancement to ensure that organisations publish and enforce clear, concise and accurate procedures that specify how an individual's responsibilities are to be coordinated during the GHSPs' activities. SOPs should be clear, comprehensive and readily available.

8.5.2 SOPs are the result of a careful process, often conducted over a period of many years, which considers all likely outcomes; deviation from the SOP may lead to an unexpected and unsafe outcome. Failure to follow established procedures has been found to be a causal factor in many accidents and serious incidents, as such SOPs are not discretionary and must be followed precisely as an effective method of avoiding accidents. Management at all levels must insist on the proper use of SOPs. However, deviations from SOPs may occur when the risk is not foreseen by the SOP and/or when following the SOP would affect safety. Any deviation should be recorded and analysed to improve understanding and to support the development of operational specific and appropriate procedures.

8.5.3 Initial training provides the opportunity to establish the disciplined use of SOPs and recurrent training offers the opportunity to reinforce that behaviour. Effective SOPs should be continually reviewed and renewed, and are the product of healthy collaboration at all levels within the organisation.

8.5.4 The multiplicity of SOPs for the same task provided by different air operators, such as aircraft chocking and placement of safety cones, is confusing and counterproductive. Air operators, aerodrome operators and GHSPs should cooperate to develop and use a harmonised common set of procedures. Aircraft manufacturers, GSE manufacturers and States can also provide valuable contribution to such developments.

8.5.5 The SOPs serve the purpose of describing how to safely undertake tasks and activities for operations but should also include aspects such as quality,

performance, security, occupational health and safety. Organisations should encourage feedback on the effectiveness and applicability of SOPs to ensure they are fit to manage the risks associated with the tasks and operational conditions. The organisation should have an open reporting system that encourages feedback on aspects of the organisation, so that any issue can be investigated and corrected.

9 General Safety Guidelines

9.1 Airside Locations

9.1.1 Subject to intended and approved operation categories, all GHSPs shall ensure the followings information are made available to all personnel.

9.1.2 The information as per 9.1.1 shall be delivered through standard operating procedures, manuals, instructions, notices or training to all relevant personnel.

9.1.2.1 Equipment Restraint Area (ERA) & Equipment Restraint Line

a) The ERA is defined as the area of the apron bordered by a red line. It shall be kept clear at all times for the safe movement of an aircraft in and out of the stand. Personnel, vehicles and/or GSE are only allowed to enter when servicing the aircraft or for other work purposes.

9.1.2.2 Overlapping Equipment Restraint Area (ERA) and “Keep Clear” zones at the aircraft stands

a) The overlapping ERA and “Keep Clear” zones shall be kept clear of personnel, vehicles and/or GSE at all times. Parking and staging are strictly prohibited;

b) All overlapping ERAs will be progressively converted to “Keep Clear” zones. The “Keep Clear” zones will be marked with white hatched lines and indicated as “No Parking”;

c) Personnel who are handling aircraft operations at the aircraft stand and adjacent stands shall perform pre-arrival and pre-departure FOD checks and remove any FOD from the “Keep Clear” zone;

d) The ADGS operator/manual marshaller (i.e. Arrival OIC) and headset man (Departure OIC) shall ensure that the ERA and the adjacent “Keep Clear” zones are clear of any obstruction prior to arrival and pushback of aircraft.

9.1.2.3 Equipment Staging Area (ESA)

a) The ESA of an aircraft stand is demarcated by a continuous white line outlining the area where ground handling equipment or vehicles for the servicing of an aircraft be positioned at least 20 minutes before the arrival the aircraft. All vehicles must be lined up in an orderly manner at all times. All ground handling equipment or vehicles shall be removed from the ESA and returned to the designated parking area after aircraft servicing.

9.2 Operating Vehicles and Motorised Ground Support Equipment at The Apron

9.2.1 Airside Driving Permit (ADP) & Airside Vehicle Permit (AVP)

9.2.1.1 All vehicles operating in the airside must be issued with an Airside Vehicle Permit (AVP). The AVP shall be displayed on the windscreen or in a prominent location on the vehicle.

9.2.1.2 Only personnel who are issued with a valid aerodrome ADP for that specific equipment / vehicle type are allowed to drive and operate the GSE. Drivers and operators shall carry both the ADP and State License at all times when driving in the airside and are expected to present their State License and ADP when requested.

9.2.2 Safe driving and parking of ground support equipment inside ERA

9.2.2.1 The following precautions shall be observed before entering the ERA for aircraft servicing:

a) Aircraft is at a complete stop;

b) Engines are switched off and spooling down;

c) Anti-collision lights are switched off;

d) Wheel chocks are positioned;

e) Grounding cables are connected on the nose and main landing gears;

f) Ground / Flight crew communication is established, and headset man gives the ‘thumbs up’ signal.

Note. – The above does not apply for GPU when aircraft’s APU is unserviceable. The GPU should be positioned on the right-hand side of the nose wheel parallel to the aircraft centreline.

9.2.2.2 When operating GSE in the ERA:

a) Do not approach the aircraft until all safety cones have been placed;

b) Do not drive GSE more than 5 km/h;

c) Do not operate vehicles or equipment while using hand-held PEDs;

d) Do not carry extra personnel during GSE movement unless that person is seated in a passenger seat provided in the vehicle or standing in a section of the vehicle which has been constructed for standing passengers;

e) Do not drive the GSE across the path of embarking and disembarking passengers. Aircraft passengers always have right of way;

f) Ensure a free passage is maintained for the fuel dispenser to be evacuated speedily;

g) Do not drive or park under the aircraft fuselage and / or wing, and do not drive over fuel pits.

Note. - Exceptions: GSE and vehicles needed for aircraft servicing (e.g. aircraft fuel dispenser, aircraft defueling truck, water servicing truck, toilet / lavatory servicing truck)

a) Do not leave any vehicle unattended with its engine running;

b) Do not drive GSE with lifting devices in the raised positions, except for final positioning of the GSE onto the aircraft;

c) Use a guide person when reversing GSE to the aircraft; and

d) After positioning on the aircraft, raise all safety rails on conveyor belts, loaders and other elevated devices;

e) Make a minimum of one complete stop with all motorised vehicles / equipment prior to entering the ERA:

1) Conduct a “Brake Check” or “Safety Stop” by coming to a full and complete stop to confirm the serviceability of the brake system on the vehicle and to test the apron surface. This action shall be carried out even if there is no ERA marked on the apron;

2) This stop shall be conducted at a distance no less than 5 meters from the aircraft.

f) Manoeuvre GSE carefully to prevent personnel injury and / or aircraft damage;

g) When reversing vehicles or equipment with limited rear-view visibility inside the ERA:

1) Be guided by an agent using standard ICAO signals, and / or;

2) Be assisted by means of a rear-view video or mirror.

Note. – Marshaller must position himself to the obstacle and maintain the line of sight with the driver.

9.2.3 Breakdown of GSE within the ERA

9.2.3.1 In the event of a breakdown of a GSE within the aircraft stand, operators shall:

a) Not leave the GSE unattended;

b) Arrange for the immediate removal of the GSE and ensure that aircraft handling operations are not obstructed.

c) Notify the authority i.e. CAAM in the event the breakdown will jeopardise the aircraft safety.

9.2.4 Mandatory deployment of wheel chocks/stabilisers on motorised ground support equipment

9.2.4.1 Correct deployment of wheel chocks/stabilisers on motorised GSE can prevent inadvertent rolling forward/backward of equipment, or when in-built braking mechanism malfunctions.

9.2.4.2 The following motorised GSEs shall at all times, be deployed with wheel chocks/stabilisers when docked onto the aircraft or when parked in the airside:

a) Tractor;

b) Water truck;

c) Lavatory truck;

d) Ballymore;

e) Hi-Lift;

f) Lower deck loader;

g) Main deck loader;

h) Ground power unit;

i) Air starter unit;

j) Fuel truck/ hydrant dispenser;

k) Air-conditioned unit (including towable unit);

l) Belt loader (including towable belt loader);

m) Passenger stairs (including towable passenger stairs).

9.2.4.3 Wheel chocks are to be used in pairs, positioned firmly and squarely against the centre of the tire. Improper positioning may reduce the effectiveness of the wheel chocks.

9.2.4.4 All non-motorised GSE such as container/pallet dollies, trolleys and maintenance steps are to be secured with built-in braking mechanisms or/and chained to the D-ring when parked (if available).

9.2.5 Action when vehicle catches fire

9.2.5.1 If possible, the operator should first attempt to move the vehicle away from the aircraft and building. The operator shall then carry out the following:

a) Turn off engine;

b) Switch off master switch if applicable;

c) Get the passenger and himself out of the vehicle

d) Attempt to put out the fire with the fire extinguisher on board without endangering oneself;

e) Stay away from the vehicle and direct traffic away;

9.3 General Conduct of Ramp Personnel

9.3.1 High visibility safety vest & raincoat specifications

9.3.1.1 A high visibility vest shall be of a type approved by the airport licensee and shall comply with such requirements as the airport licensee may from time to time specify.

9.3.1.2 A high visibility raincoat or rain suit shall be of a type approved by the airport licensee and shall comply with such requirements as the airport licensee may from time to time specify.

9.3.1.3 Every person entering or performing work within the apron, including the aircraft stands, compass swing area, baggage sorting area, shall wear a high visibility safety vest at all times.

9.3.1.4 The specifications for the vest are:

a) Basic colour must be bright;

b) Yellow, orange and lime green are recommended;

c) Meets a minimum of Class 2 of the EN ISO 20471:2013 which requires a minimum of 0.5m^2 fluorescent material and 0.13 m^2 reflective surfaces;

d) Be imprinted with the company's logo for easy identification.

Note 1. – If the company uniform incorporates the safety vest requirements, the safety vest will not be required. However, the safety vest shall be worn if the uniform no longer meets the minimum requirements stipulated above.

Note 2. – At all time the specification of the vest used shall be an approved type by the airport licensee.

9.3.1.5 The high visibility raincoat or rain suit shall meet the following specifications:

a) The raincoat or rain suit shall meet a minimum of **Class 3** of the new **EN ISO 20471:2013** which requires a minimum of 0.8m^2 fluorescent surface and 0.2m^2 reflective surfaces.

b) It shall cover the torso and have minimally either sleeves with retro-reflective bands or full-length trouser legs with retro-reflective bands.

c) If the raincoat or rain suit does not meet the above requirement, a Class 2 high visibility safety vest shall be worn over the raincoat or rain suit.

9.3.2 Airside rules

9.3.2.1 The following airside rules shall be adhered to:

a) Do not smoke;

b) Follow established procedures (i.e. no horseplay);

c) Do not walk between ULDs or trailers;

d) Do not maltreat GSE and to use GSE only for its intended purpose. Do not tow another GSE unless a suitable tow bar is used for that purpose;

e) Observe the danger areas / hazards on the ramp and take the necessary precautions for personnel and aircraft safety. Report oil spills covering an area more than 4 m².

f) Ensure the ground below the PLB emergency stairs is kept clear of all obstructions;

g) Do not litter or leave any refuse or FOD within the aircraft stand;

h) Do not consume any food or beverage and do not feed any birds or animals;

i) Do not use PEDs (e.g. cell phone, camera, PDA also known as palmtop computer, radios) within 3 meters of FSZ when refuelling is in progress unless such device is intrinsically-safe certified;

j) Do not walk over the refuelling hose.

Note. – Every time an aircraft is refuelled, fuel is pumped into the aircraft fuel tanks, expelling fuel vapours from the tanks through each wing vent (approx. 1 meter inside each wingtip). These vapours mix with the surrounding air forming a flammable environment. Introducing equipment which can produce spark risks can cause ignition of the vapours and flash fire.

9.4 Adverse Weather Conditions

9.4.1 Storm and lightning

9.4.1.1 Operators must reduce speed in consideration of the slippery apron surface.

9.4.1.2 Operators must wear a high visibility raincoat or rain suit.

9.4.1.3 Personnel performing ground to flight deck communications shall use the wireless headset, especially during inclement weather conditions.

9.4.1.4 3-point grounding is a means of lightning protection for all personnel servicing the aircraft. Personnel shall ensure that the aircraft is grounded at 3 points at all times when the aircraft is parked at the aircraft stand.

9.4.1.5 3-point grounding is applicable to all aircraft types.

Note. – Boeing 737 only has 2 designated ground points. 2-point aircraft grounding shall be conducted when handling the Boeing 737 aircraft.

9.4.2 Strong wind conditions

9.4.2.1 During strong wind conditions, personnel shall ensure:

a) Aircraft landing gears are chocked;

b) All GSEs are properly secured;

1) Parking brakes are set on all parked GSE;

2) Wheel chocks/stabilisers are deployed for GSE when docked onto aircraft or parked;

3) Stabilisers of maintenance steps are fully engaged;

4) Wheel chocks and securing chains are used when available;

5) Empty ULDs are secured;

c) All loose items such as cleaning tools are kept;

d) Equipment not required for the servicing of the aircraft are removed from the ERA;

e) Bypass pin is inserted only when aircraft is ready for pushback and/or towing operations;

f) Extreme care is taken when opening or closing aircraft doors.

Note. – Upon receiving the strong wind alert which is disseminated via the Flight Information Display System (FIDS) to the GSPs, operators are to conduct a round of check to ensure that the standard precautions are being taken.

9.4.3 Low visibility

9.4.3.1 During low visibility conditions, personnel shall ensure:

a) Headlights are switched on prior to the aircraft arrival at the stand;

b) Second level floodlights are switched on (if required);

c) Cautious driving.

9.5 Use of Aircraft Wheel Chocks and Safety Cones

9.5.1 Use of aircraft wheel chocks

9.5.1.1 Sufficient numbers of serviceable chocks shall be provided for the arrival aircraft, considering the ramp and / or weather conditions.

9.5.1.2 Do not approach the aircraft until:

a) Aircraft is at a complete stop;

b) Engines are switched off and spooling down;

c) Anti-collision lights are switched off;

d) Wheel chocks are positioned;

e) Grounding cables are connected on the nose and main landing gears;

f) Ground/flight crew communication is established, and headset man gives the ‘thumbs up’ signal.

9.5.2 Placement of wheel chocks

9.5.2.1 Chocks shall be placed in accordance with airline requirements:

a) Walk towards the main gear in the path parallel to the fuselage, avoiding engine intake areas;

b) Remove any temporarily-placed nose gear chocks, if applicable;

c) When placing chocks, stand well clear of the path of the tires. Approach/leave the main landing gear from the front or rear;

d) Notify the flight deck when the chocks are placed.

9.5.3 Removal of wheel chocks

9.5.3.1 Remove chocks only when:

a) After loading GSE have been disconnected from the aircraft including the PLB;

b) Air tug is connected to the aircraft;

c) Air tug parking brake is engaged;

d) Aircraft parking brake is engaged.

9.5.3.2 When not in use, all unused chocks shall be removed from the aircraft stand and stowed away in their designated stowage areas.

9.5.4 Use of safety cones

9.5.4.1 Safety cones are a caution indicator for operators to maintain a safety distance from certain parts of the aircraft to prevent collision by GSE.

9.5.4.2 Safety cones shall be orange in colour with reflective stripes. Cones shall not be used if it does not serve its intended purpose.

9.5.4.3 Prior to arrival of the aircraft, there shall be sufficient serviceable safety cones for the aircraft type to be handled.

9.5.5 Placement of safety cones

9.5.5.1 Do not approach the aircraft until:

a) Aircraft is at a complete stop;

b) Engines are switched off and spooling down;

c) Anti-collision lights are switched off;

d) Wheel chocks are positioned;

e) Grounding cables are connected on the nose and main landing gears;

f) Ground / Flight crew communication is established, and headset man gives the ‘thumbs up’ signal.

Note. – GSE to approach aircraft when safety cones are in position.

9.5.5.2 Cone placement should be done according with the airlines’ requirement or as recommended by IATA (IGOM Chapter 4.3), shown in Figure 9-1 and Figure 9-2 – within a maximum of 1 meter outward from the point of the aircraft being protected.

9.5.5.3 It is mandatory to place a safety cone under the tail of aircraft upon aircraft arrival (after thumbs-up) along with other current safety cones as recommended by IATA or as required by airlines.

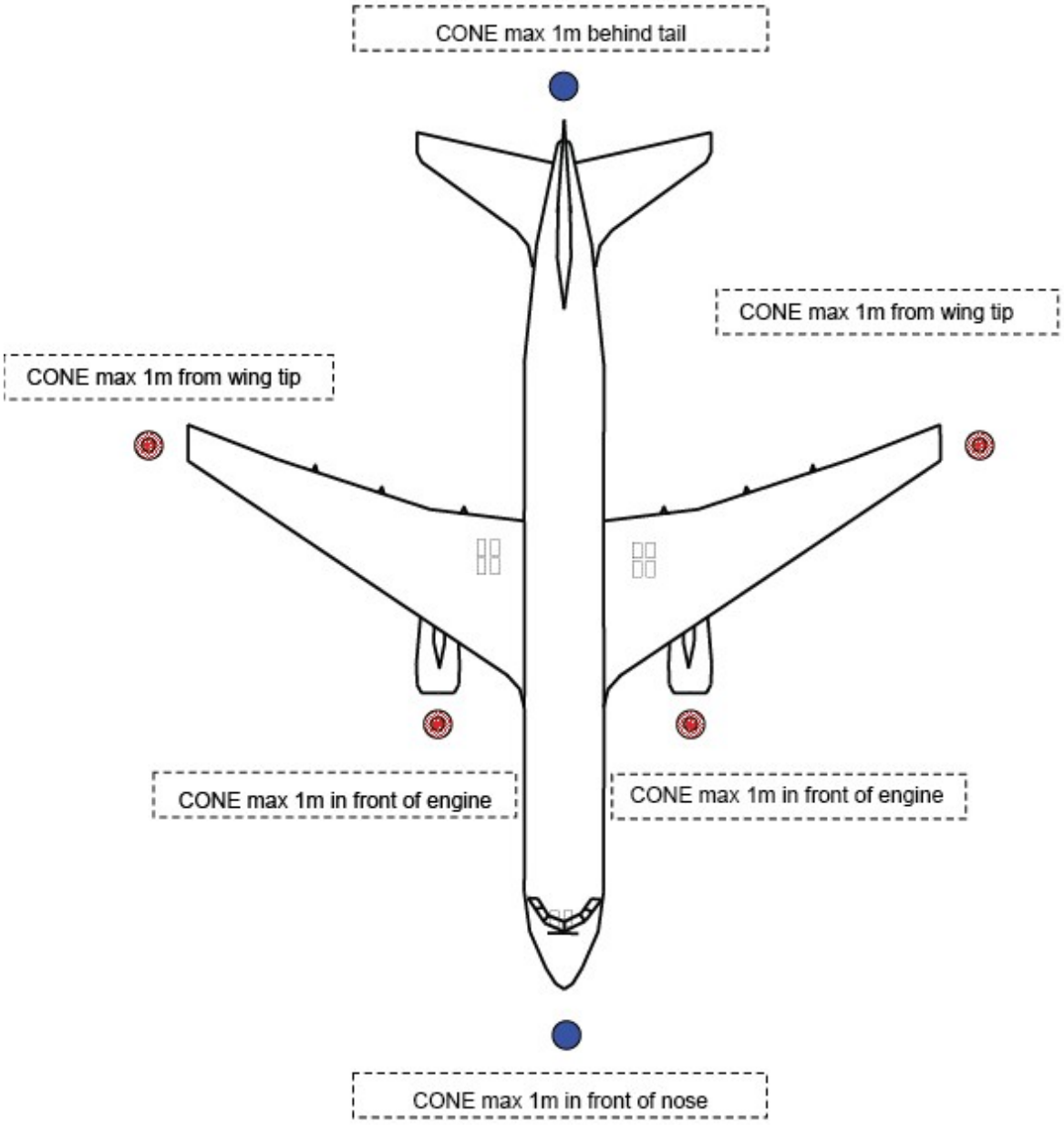

Figure 9-1: Cone Placement for Wing-Mounted Twin Engine Jet Aircraft.

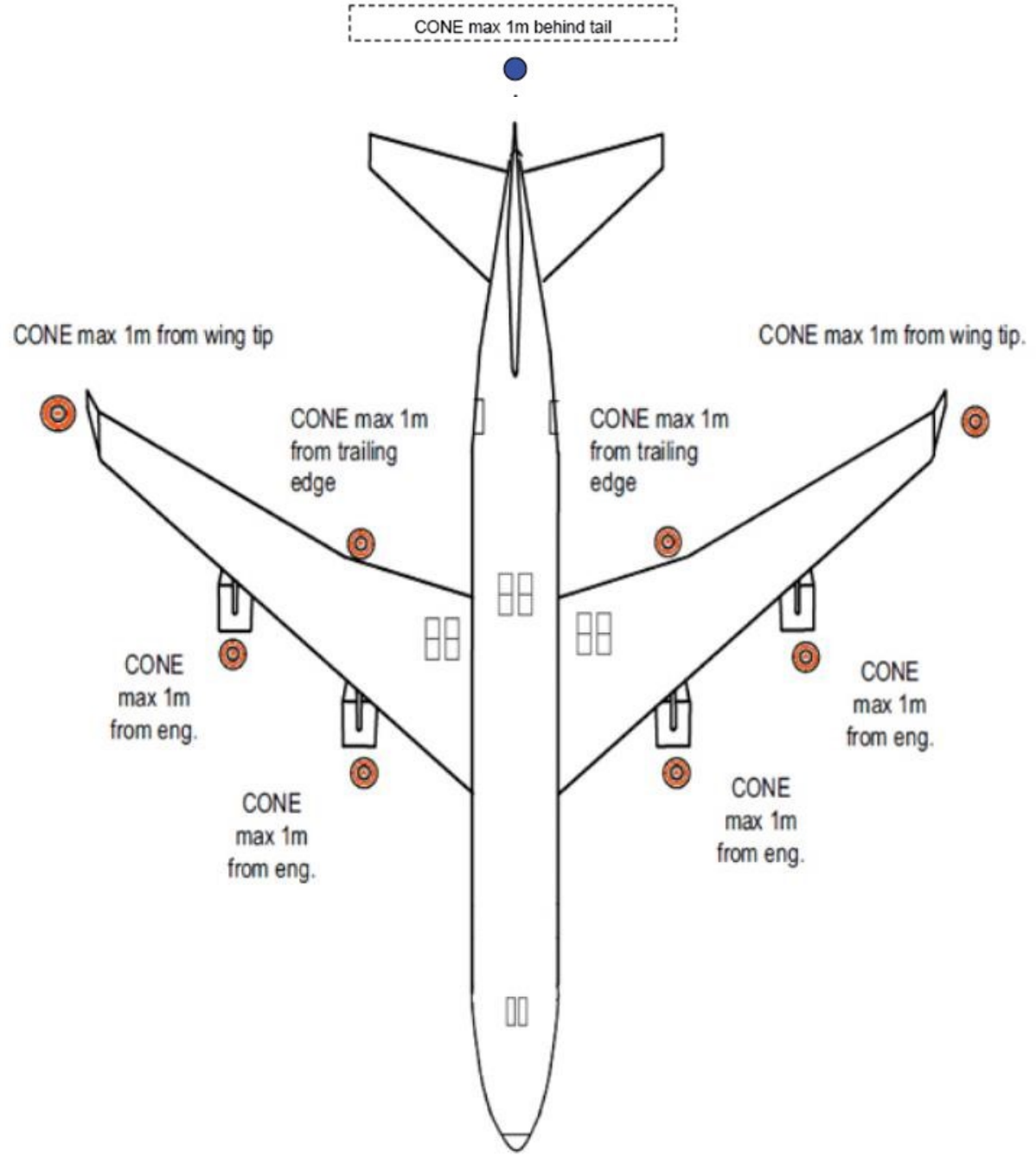

Figure 9-2: Cone Placement for Wing-Mounted Four Engine Jet Aircraft

9.5.6 Removal of safety cones

a) Do not remove until GSE and vehicular activities around the aircraft have ceased prior to departure of the aircraft (excluding the PLB);

b) When not in use, the safety cones shall be placed at the designated storage area.

9.6 Foreign Object Debris

9.6.1 General term for FOD

9.6.1.1 Foreign Object Debris (FOD) is a general term which applies to all loose objects which endanger the safety of aircraft and therefore must not be left in any area where they would constitute a hazard.

9.6.1.2 Every individual has a responsibility to ensure that the risk of damage to aircraft from FOD is minimised.

9.6.1.3 All FOD must be removed and properly disposed of as soon as it is discovered.

9.6.1.4 Often the presence of FOD is due to the carelessness of personnel working in the airside or the failure to appropriately dispose waste from the airside. FOD are commonly left in aircraft movement areas by airside personnel or blown to aircraft movement areas from other airside areas.

9.6.1.5 All personnel are responsible for identifying and removing FOD. “If you see it (FOD), remove it”.

9.6.2 FOD management policy

9.6.2.1 FOD prevention is the duty and responsibility of everyone working in the airside in the airport. This policy applies to all staff and airside agencies at Malaysian Airport.

9.6.2.2 All airside partners and personnel are responsible for managing waste generated by their operations and ensure that the airside areas they use are left in a state of cleanliness no worse than prior to their use.

9.6.2.3 If anyone witnesses any FOD safety risks, please report them.

9.6.3 Results of FOD

9.6.3.1 Foreign object debris may be ingested into aircraft engines, causing damage to critical engine parts. This is especially hazardous if it occurs in flight, particularly during the take-off phase.

9.6.3.2 In addition, FOD can cause damage to the tyres, undercarriage, control systems and other parts of the airframe. All such damage could lead to inflight failures.

9.6.3.3 Items such as rags and wireless headset unit, associated with engineering and servicing of aircraft, have been left in wheel bays and other ledges where they can subsequently fall out during take-off phase and create a hazard to subsequent aircraft landing or taking off on the runway.

9.6.3.4 Failure to maintain ground support equipment (i.e. where parts break off or fall can also cause FOD).

9.6.4 FOD checks

9.6.4.1 The following checks must be conducted prior to any aircraft movement or servicing operation:

a) Before aircraft arrival or departure, conduct a FOD walk of the aircraft stand removing all FOD found;

b) Check equipment staging and parking areas in proximity to area of operation;

c) Pick-up and dispose all FOD in designated garbage bins, where provided.

9.6.4.2 Personnel shall perform the following when operating GSE on the ramp:

a) Conduct routine checks on ground equipment (including floors of enclosed cabins);

b) In ramp areas ensure that anything carried in or on a vehicle is secured. Items such as safety cones and/or wheel chocks should not be left unsecured on GSEs when in operations.

9.6.4.3 All items that are generated as part of aircraft handling (especially baggage items such as locks and zippers and cargo load that may have fallen off their containers) are cleared from the apron area; and

9.6.4.4 Area that the aircraft is moving towards is clear of FOD to ensure safe aircraft movement.

9.6.5 Engine start

9.6.5.1 Qualified personnel shall complete a final examination of the aircraft before engine start to confirm:

a) Surface condition of the apron is adequate to conduct operations; and

b) Apron is clear of items that might cause FOD.

9.6.6 Actions by Airline's Agent during refuelling with passengers on board

9.6.6.1 Personnel shall ensure the escape routes of passengers on board such as passenger stairs and bridges are clear of FOD.

9.6.7 What to do when carrying out regular activities at the airside

9.6.7.1 Remove all items (including trash) generated from aircraft servicing from the aircraft stand immediately, unless with prior approval from Aerodrome operator.

9.6.7.2 Always return all equipment to their designated positions after use. These include safety cones, aircraft wheel chocks, aircraft grounding cables and fire extinguishers.

9.6.7.3 Do not leave any personal belongings unattended anywhere, especially on the plinth area. Ensure that personal belongings carried on the person are well kept and secured and do not fall off onto airside areas.

10 Standard Operating Procedures

10.1 Introduction

10.1.1 Standard Operating Procedures (SOPs) are the foundation of effective personnel coordination and a key component in team resource management and threat and error management.

10.1.2 GSPs shall establish and maintain SOPs for their various operations accordingly, and to ensure that they can be carried out effectively and safely.

10.1.3 The SOPs must be aligned to the operating procedures stated in the GHM or GOM and conform to the operation categories as per 2.2.

10.1.4 GHSPs shall ensure that all personnel are trained in the relevant SOPs to maintain a standardised level of currency.

10.1.5 The SOPs shall be reviewed whenever there is a change to the operation.

10.2 Passenger Handling Procedure

10.2.1 GHSPs shall have a procedure for handling a passenger including both commercial airlines and private aircraft.

10.2.2 The passenger handling procedure shall cover from arrival, departure, transfer and transit passenger. The followings shall be incorporated where applicable.

a) Passenger Pre-Flight Preparation;

b) Check-In Counter Requirements;

c) Travel Documents and Verification;

d) Passenger Acceptance;

e) Check-In and Boarding Policy;

f) Gate Management;

g) Passenger Boarding Supervision and Control;

h) Passenger Security Documents;

i) Security of Passengers and Baggage;

j) Dangerous Goods handling.

10.2.3 The procedure shall also include assistance to the followings.

a) Passengers with reduced mobility;

b) Medical clearance;

c) Wheelchair passengers;

d) Expectant mothers;

e) Unaccompanied children;

f) VIP;

g) Any other special cases.

10.2.4 When contracted by the airlines, GHSPs may adapt to the procedures outlined by the customer airlines as long the requirement is approved by the CAAM.

10.3 Freight and Mail Handling

10.3.1 GHSPs shall have a procedure for freight and mail handling (also known as cargo handling).

10.3.2 The procedure shall include as a minimum to the followings.

a) Documentation requirements;

b) Customs procedures;

c) Security procedures;

d) Physical handling procedures.

1) Incoming cargo;
2) Outgoing cargo;
3) Transit;
4) Movement between cargo terminal and aircraft and vice versa.

10.3.3 GHSPs shall ensure that all cargo handling procedure with regards to Dangerous Goods are complying to CAD 18.

10.3.4 When contracted by the airlines, GHSPs may adapt to the procedures outlined by the customer airlines as long the requirement is approved by the CAAM.

10.4 Aircraft Services

10.4.1 GHSPs shall have a procedure for aircraft services.

10.4.2 The procedure shall include as a minimum to the followings.

a) External and internal cleaning of the aircraft;

b) Water services;

c) Lavatory services;

d) Cooling and heating of the cabin;

e) Removal of snow and ice (where applicable);

f) De-icing (where applicable);

g) Re-arrangement of cabin with suitable cabin equipment (where applicable).

10.4.3 When contracted by the airlines, GHSPs may adapt to the procedures outlined by the customer airlines as long the requirement is approved by the CAAM.

10.5 Flight Operations and Crew Administration

10.5.1 GHSPs shall have a procedure for operations of flight including crew administration.

10.5.2 The procedure shall include as a minimum to the followings.

a) Preparation of the flight at the departure airport or at any other point;

b) In-flight assistance including dispatch & re-dispatching, flight planning, flight watch, weather data provision, operations control, ground to air communications and integration with crew, schedules and maintenance planning;

c) Post-flight activities including aircraft parking, marshalling and securing an aircraft;

d) Crew administration including planning and recovery of the crew.

10.5.3 When contracted by the airlines, GHSPs may adapt to the procedures outlined by the customer airlines as long the requirement is approved by the CAAM.

10.6 Surface transport

10.6.1 GHSPs shall have a procedure for conducting a surface transport operation.

10.6.2 GHSPs providing a service of transport of crew, passenger, baggage, freight and mail between different terminals within the parameters of the same airport shall have a written procedure.

10.6.3 The procedure shall include as a minimum to the followings.

a) Transport of crew including technical crew and cabin crew;

b) Transport of passenger including special handling passenger such as reduced mobility and VIP;

c) Movement of baggage;

d) Movement of freight and mail (cargo).

10.6.4 When contracted by the airlines, GHSPs may adapt to the procedures outlined by the customer airlines as long the requirement is approved by the CAAM.

10.7 Catering Services

10.7.1 GHSPs shall have a procedure for catering services.

10.7.2 GHSPs providing a catering services shall comply and conform to the following's requirement.

a) Food Act 1983 and its Regulations;

b) Food Hygiene Regulations 2009;

c) Prevention and Control of Infectious Diseases Act 1988;

d) International Health Regulations 2005.

10.7.3 The procedure shall include as a minimum to the followings.

a) Liaison and administrative management with suppliers including receiving and rejection of raw materials and items;

b) Storage of food and beverages and including the equipment needed for the preparation of food and beverages. This includes storage of food in chiller and thawing of food;

c) Control of operation including cooking, cook chill process, chilling, temperature monitoring, timing, regeneration, etc.;

d) Cleaning of the equipment including maintenance requirement;

e) Cross contamination and managing complaint;

f) Preparation and delivery of equipment as well as of bar and food including acceptance of food deliveries, distribution and serving of food;

g) Waste management including refuse and disposal.

10.7.4 When contracted by the airlines, GHSPs may adapt to the procedures outlined by the customer airlines as long the requirement is approved by the CAAM.

10.8 Baggage handling

10.8.1 GHSPs shall have a procedure for handling of baggage.

10.8.2 The procedure shall include as a minimum to the followings.

a) Sorting of baggage in the sorting area;

b) Preparing of baggage for departure;

c) Loading and unloading into devices designed to move it from the aircraft to the sorting area and vice versa;

d) Transporting baggage from the sorting area to the reclaim area;

e) Unclaimed/ mishandled/ unidentified baggage;

f) Delayed or lost baggage;

g) Damage baggage;

h) Off-loading of baggage;

i) Security of baggage;

j) Handling of Dangerous Goods.

10.8.3 When contracted by the airlines, GHSPs may adapt to the procedures outlined by the customer airlines as long the requirement is approved by the CAAM.

10.9 Ramp Handling

10.9.1 GHSPs shall have a procedure for ramp handling. The standardised arrival and departure handling procedure shall be developed in collaboration with the airport airside community. This standardised procedure seeks to improve ground operational safety by specifying the minimum standard operating requirements for ramp handling, and to reduce the complexity of ground handling operation by harmonising multiple stakeholders performing ground handling functions on the same aircraft.

10.9.2 The procedure shall include as a minimum to the followings.

a) Aircraft marshalling during arrival and departure including responsibilities of a personnel;

b) Assistance to aircraft parking and provision of suitable devices;

c) Communication between the aircraft and the air-side supplier of services;

d) The loading and unloading of the aircraft, including the provision and operation of suitable means;

e) The transport of crew and passengers between the aircraft and the terminal;

f) Baggage transport between the aircraft and the terminal;

g) The provision and operation of appropriate units for engine starting;

h) The moving of the aircraft at arrival and departure (aircraft towing), as well as the provision and operation of suitable devices;

i) The transport, loading on to and unloading from the aircraft of food and beverages;

10.9.3 When contracted by the airlines, GHSPs may adapt to the procedures outlined by the customer airlines as long the requirement is approved by the CAAM.

10.10 Fuel and Oil Handling

10.10.1 GHSPs shall have a procedure for handling of fuel and oil.

10.10.2 GHSPs providing a fuel and oil handling services shall comply and conform to the following's requirement.

a) ICAO Doc. 9977;

b) JIG Standards;

c) EI Standards.

10.10.3 GHSPs providing fuel and oil handling shall a minimum have the followings procedure.

a) Fuelling operation using suitable devices;

b) Defueling operation using suitable devices;

c) Receiving of fuel using a suitable device;

d) Storage of sufficient quantity of fuel using suitable devices;

e) Quality control and assurance including handling of contaminated and off-specification products;

f) Measuring of quantity of fuel delivered to aircraft;

g) Maintenance of suitable devices for fuel and oil handling.

10.10.4 When contracted by the airlines, GHSPs may adapt to the procedures outlined by the customer airlines as long the requirement is approved by the CAAM.

11 Operation of Ground Support Equipment

11.1 Introduction

11.1.1 All self-propelled GSE interfacing with the aircraft shall have an aircraft proximity system facility to automatically force the GSE to snail speed at any time the equipment is within a minimum of 0.5m of the aircraft interface point.

11.1.2 In the event the aircraft proximity detection system fails, all self-propelled GSE shall default to snail speed.

11.1.3 Under automatic engagement of snail mode, the deceleration rate under full load shall be positively controlled and non-jerking.

11.2 General Safety Instructions

11.2.1 Basic operating requirements for GSE

a) Check equipment prior to initial use- the parking mechanisms, rubber protective bumpers;

b) Do not drive GSE with lifting devices in the raised position, except for final positioning onto the aircraft;

c) Do not operate the platform while in motion;

d) All GSE shall not touch the aircraft. When positioning GSE, a safety clearance must be maintained between the GSE and the aircraft;

e) All safety rails must be fully retracted/lowered during positioning;

f) Do not leave any vehicle unattended with its engine running.

Note. – GPUs may be left running unattended with its engine running

g) Do not use faulty GSE;

h) Do not transport wheel chocks and / or safety cones placed on the roof top of GSE such as tractors and covered trolleys. Top of containers shall be free of baggage / cargo / mail;

i) When handling smaller aircraft such as A320 and B737 etc (i.e. Code A to C), do not tow more than 2 baggage trolleys / carts and dollies within the ERA for positioning for unloading / loading of baggage / cargo purposes;

j) Deploy stabilisers and parking brakes when GSE is stationary.

11.2.2 Driving and parking in ERA

a) Do not drive GSE faster than walking speed;

b) Make two safety stops;

c) One complete stop prior to entering the ERA;

1) One complete stop as a brake check, at no less than 5 meters from the aircraft.

d) Marshallers are to be deployed when reversing GSE towards the aircraft;

e) Ensure all vehicles and equipment used for the handling of aircraft are pre-positioned in an orderly manner within the ESA prior to aircraft's ETA;

f) Ensure no parts of the vehicles and equipment are protruding into the ERA demarcated in red. All vehicles and equipment are to be parked orderly within the ESA and shall not protrude into the ERA demarcated in red;

g) The equipment shall not be parked in an area that will be affected by jet blast or cause obstruction to:

1) Arriving aircraft;
2) Vehicular traffic lanes;
3) Adjacent stands.

h) Strictly no personnel, vehicle and / or equipment are allowed in the ERA prior to aircraft arrival;

i) Check the surrounding area to ensure there is no FOD on all equipment, in the ERA and the adjacent keep clear zones.

11.3 GSE Operations

11.3.1 Pre-operation equipment inspection (motorised GSE)

a) Conduct visual checks for damage, cracks or abnormal wear;

b) Brakes are operational;

c) Illumination & indication lights are functional;

d) Warning systems are functional;

e) Steering is functional;

f) No fluid and/or oil leaks;

g) No worn tyres;

h) Rubber bumpers are in good condition.

11.3.2 Pre-operation equipment inspection (non-motorised GSE)

a) Conduct visual checks for damage, cracks or abnormal wear;

b) Stabilisers and braking mechanisms are functional;

c) No worn tyres.

11.3.3 Pre-operation equipment inspection (applicable to refuellers only)

a) Conduct visual checks for damage, cracks or abnormal wear;

b) Brakes are operational;

c) Illumination & indication lights are functional;

d) No fluid and/or oil leaks;

e) No worn tyres;

f) Safety interlocking system are functional;

g) Fuel quality check (for fuel truck only);

h) Fuel quality control equipment is available.

11.3.4 Load carried by GSE

a) All load carried by the vehicle shall be secured at all times;

b) The use of plastic sheeting over the top of the load is acceptable however, it shall always be placed underneath the cargo net and be adequately tucked into the edges of the load to prevent it from becoming potential FOD during transportation or strong wind conditions.

11.3.5 Unit Load Devices

a) ULDs refer to baggage and cargo containers. Do not store ULDs on the ground and always use a suitable ULD base support system;

b) Close and latch doors fully before towing and loading.

11.3.6 Mobile and non-motorised passenger steps/stairs

a) Check the condition of the rubber bumpers before used;

b) Select the height of the aircraft type before docking;

c) Move the equipment only when the movement path is clear.

d) If the passenger steps / stairs are towed (non-motorised equipment), disconnect them from the tractor and manually position them toward the aircraft;

e) Extend side rails after the cabin door has been opened;

f) Close the aircraft cabin door before removing the passenger steps / stairs.

Note. – Aircraft cabin door shall not be in open position without any GSE (platform or PLB) securely positioned at the door.

11.3.7 Belt loader/sky loader

11.3.7.1 When operating the belt loader / sky loader:

a) Check that the rubber bumpers are in good condition before deploying;

b) Position and remove the equipment in a straight line with the cargo hold door at a 90° angle to the aircraft fuselage till clear of aircraft engine;

c) The rubber bumpers must never make contact with the aircraft. Maintain a safety gap between the equipment and aircraft at all times when docking;

d) Raise / extend the side handrails after the equipment is positioned;

e) Do not sit or stand on the conveyor belt during GSE movement and when the conveyor belt is in operation (up or down);

f) When placing items on the conveyor belt, ensure they are stable and will not fall off;

g) Do not overload.

11.3.8 ULD Loader/ JCPL/ MDL

11.3.8.1 When operating loading GSEs:

a) Check that the rubber bumpers are in good condition before deploying;

b) Check that the GSE is serviceable before use;

c) Never drive the GSE under the aircraft wings;

d) Do not use the JCPL / MDL to transport ULDs across the ramp;

e) When reversing from aircraft, do so in a straight line with the cargo hold door at a 90° angle to the aircraft fuselage till clear of aircraft engine;

f) Maintain a safety gap between the equipment and aircraft when docking.

11.3.9 Elevating equipment

11.3.9.1 When operating elevating equipment:

a) The final position of the GSE must allow for a safe working area while in the raised position at the aircraft door to prevent personnel and objects from falling;

b) Maintain a safety gap between the equipment and aircraft when docking;

c) Check for any obstructions over both sides of the GSE before lowering;

d) Engage stabilisers and parking brakes when equipment is stationary;

e) Use a guide person when vision is restricted. The guide person shall be in a position to accurately judge clearances and communicate signals to the driver/operator. Stop immediately if visual contact with the guide person is lost;

f) Close and secure all doors when servicing is complete.

Note. – All relevant elevating platform shall hold a valid approval from respective authorities.

11.3.10 Potable Water Servicing and Toilet Servicing

a) Wear PPE at all times;

b) After servicing, the fitting caps and service panel door must be closed and latched;

c) Report any spillage on the aircraft stand to his supervisor for cleaning arrangement.

11.4 Aircraft Ground Stability

a) In general, when loading, load forward holds before aft holds;

b) When offloading, offload aft holds before forward holds;

c) To avoid “tail-tipping” during ground operations, sequential loading / unloading instructions shall be followed in accordance to airlines’ requirements;

d) Supervision personnel shall observe the aircraft ground stability during ground operations.

11.5 Low-wing aircraft (e.g. B737)

a) To prevent damage to low wing aircraft, baggage tractors should stop about 1 meter from the belt loader / sky loader and unhook the baggage trolleys;

b) Move the tractor away and position the carts;

c) When removing the baggage trolleys, the tractor should be positioned pointing away from the aircraft wing and the baggage trolley pulled to the tractor;

d) Tractors shall never drive under the aircraft wings.

11.6 Grounding of Aircraft

11.6.1 Introduction

11.6.1.1 It is mandatory to ground the aircraft at three points at all times when the aircraft is parked at the aircraft stand, as a means of lightning protection for all apron staff servicing the aircraft.

11.6.1.2 The practice of 3-point aircraft grounding is applicable to all aircraft types, except for Boeing 737. Boeing 737 only has 2 designated ground points, 2-point aircraft grounding should be carried out when handling the Boeing 737 aircraft.

11.6.1.3 All airside personnel are to exercise responsibility when using the aircraft grounding cables, and to always return them to their designated position after use.

11.6.2 Connection of grounding cables

a) Headset man connects one end of the grounding cable to the earth receptacle point before connecting the other end to the aircraft grounding point at the nose gear;

b) Headset man then connects the transceiver of the headset to establish communications with the cockpit pilot;

c) After thumbs up by the headset man, connect other grounding cables at the main landing gears.

11.6.3 Removal of grounding cables

a) After PLB is retracted and Air tug is connected, remove the two grounding cables from the main landing gears starting from the aircraft grounding point before removing the other end from the earth receptacle point;

b) After wheel chocks are removed and anti-collision lights are switched on, remove the grounding cable at the nose landing gear. Remove starting from the aircraft grounding point before the other end from the earth receptacle point.

11.7 Aircraft Departure

11.7.1 Action prior to pushback of aircraft

11.7.1.1 All persons and GSE not involved in the aircraft departure operation are to remain outside of the ERA; and

11.7.1.2 The ground personnel performing the final check on the aircraft shall check to ensure that all aircraft servicing panels and / or hatches are closed and latched.

11.7.2 Removal of wheel chocks

11.7.2.1 Remove the chocks only when:

a) After loading GSE have been disconnected from the aircraft including the PLB;

b) Air tug is connected to the aircraft;

c) Air tug parking brake is engaged;

d) Aircraft parking brake is engaged.

e) Do not leave wheel chocks on the ramp. When not in use, stow them in their designated stowage place at the aircraft stand.

11.7.3 Removal of safety cones

11.7.3.1 Safety cones can be removed with PLB still attached to aircraft. Headset man must be attentive at this time to avoid any ERA infringement and vehicle failure to give way to aircraft cases.

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12 Aircraft Pushback

12.1 Pre-departure Handling

a) Ensure that the surface condition is safe to conduct the pushback operation i.e. clear of oil spill and other FOD;

b) Ensure all the aircraft service doors / panels are closed and locked;

c) Only the required equipment and personnel involved are in the ERA;

d) Ensure that the PLB is fully retracted and wheels are parked correctly within the white parking boxes. The following exceptions apply:

Note 1. – For A380 flights, the wheels of L3 arm are in the "pre-position" box;

Note 2. – For MARS stand, wheels of PLB arm are in the "pre-position" box.

e) Ensure that the pushback path is clear of obstructions.

12.2 Departure Handling

a) Establish and maintain communication with the flight crew via headset throughout the whole operation;

b) Remain clear of the hazard zones such as aircraft nose gear, aircraft engines and near the Air tug or tractor;

c) Use standard phraseology for all verbal communication between the flight deck or brake operator and ground personnel. Provision should be made for a back-up communication system in the event of a failure of the primary system;

d) Use standard hand signals for manual communications;

e) During the pushback, align the aircraft such that the taxiway centreline is in between the aircraft main landing gears to provide sufficient wing and tail clearance;

f) If ground crew require guidance to locate the taxiway centreline, inform flight deck crew to request Changi Tower to switch on the taxiway centreline lights;

g) Spread out the braking process over as long a distance as possible, brake lightly and progressively while reducing speed as gradually as possible;

h) Avoid abrupt turning of the steering wheel as this can potentially be a skid trigger. Observe gentle and gradual steering at all times during towing;

i) Do not brake abruptly when navigating a curved path or making a turn during towing. Driver should decelerate gradually while still on the straight path in anticipation of the turn (or curve);

j) If the aircraft is to be pulled forward after pushback and engines started, take special precautions to reduce the risk of the aircraft's engine thrust causing

damage to the nose gear and tow bar when stopping the aircraft at the end of the manoeuvre;

k) Check pushback procedures of the designated aircraft stand prior to performing pushback.

l) If a revised instruction is received after pushback operation has commenced, inform the flight deck crew to seek clearance from Changi Tower to tow the aircraft back to the original parking stand. A new pushback clearance from ATC is required before commencing the pushback operation.

12.3 Departure Officer in Charge Roles and Responsibilities

12.3.1 The headset operator is recognised as the overall-in-charge for the departure phase of ground handling. He is empowered to point out any violation which could compromise safety and demand for violation to be corrected.

Note. – The OIC shall contact AMC if operators do not comply with safety procedures.

12.3.2 The key safety responsibilities of the departure OIC include the following:

a) Ensure that the PLB is fully retracted or at the “pre-position”;

b) Ensure all ground service equipment (GSE) and personnel are positioned outside of the ERA and the adjacent keep clear zones before aircraft pushback operation;

c) Ensure that the aircraft stand and adjacent keep clear zones are clear of FOD and/or spillage;

d) Ensure pushback path is clear of obstruction, aircraft and vehicle.

12.4 Pushback Operations

12.4.1 Air tug and tow bar operations

a) Ensure chocks are in place till clearance is given by the person in-charge and the correct bypass pin is installed before connecting the tow bar to the aircraft’s nose gear;

b) First detach the tow bar from the Air tug before connecting it to the aircraft’s nose gear;

c) When connecting the tow bar back to the Air tug, do not straddle the tow bar. Face the Air tug with both legs on one side of the tow bar;

d) Do not leave the Air tug connected to the aircraft unattended with engine running. Ensure that the tow bar wheels are fully retracted before commencing pushback;

e) If GPU is connected to the aircraft, confirm with the flight crew that it is not in use before removing it;

f) Perform the pushback at no more than 5 km/h. In the event of poor surface or bad weather conditions, perform the pushback at a slower speed;

g) Before disconnecting the tow bar at the end of push, position the chock at the front of the nose gear. Once clearance signal is given, display the bypass pin to the flight deck when they are cleared of taxiway;

h) Remain on standby at the stand until the aircraft taxis away on its own.

12.4.2 Towbarless Air tug operations

a) Ensure chocks are in place till clearance is given by the person in-charge and the correct bypass pin is installed before connecting the tow bar to the aircraft's nose gear;

b) Align the Towbarless Air tug with the aircraft nosewheel prior to connection;

c) Ensure that the aircraft nose wheels are safely locked in the Towbarless Air tug locking mechanism when connected to the aircraft;

d) Ensure that nose gears are lifted well above ground before commencing pushback;

e) When the pushback is completed, inform the flight deck to set the aircraft parking brakes before disconnecting the Towbarless Air tug;

f) Do not leave the Air tug connected to the aircraft unattended with engine running;

g) Perform the pushback at no more than 5 km/h. In the event of poor surface or bad weather conditions, perform the pushback at a slower speed;

h) After disconnecting the Air tug at the end of push, position the chock at the front of the nose gear;

i) After disconnecting the Towbarless Air tug from the nose gear, position the Air tug such that it is visible from the cockpit before removing the bypass pin;

j) Once clearance signal is given, display the bypass pin to the flight deck when they have cleared from the taxiway;

k) Remain on standby at the stand until the aircraft taxis away on its own.

Note. – In adherence to aviation lighting luminance standards, some embedded lights in the airfield cannot be completely flushed to the ground. While these are safe for drive-over by normal aircraft and vehicles; the cradle of Towbarless Air tug – if incompletely lifted off the ground – may damage these embedded lights.

l) Ensure that cradle of the Towbarless Air tug is fully lifted off the ground at all times, except at the point when the Air tug is connected to a stationary aircraft due for pushback;

m) Fully lift the cradle immediately after disconnecting from the aircraft; and prior to moving off from the taxiways or ERA.

12.4.3 Remote-Controlled Pushback Operation

a) Pre-position remote-controlled Air tug near the nose landing gear. DO NOT engage the remote-controlled Air tug to the aircraft nose gear wheels until all ground support equipment and the PLB is removed and aircraft parking brakes are set;

b) Align and engage the remote-controlled Air tug to the nose gear wheels when PLB is disconnected and all ground support equipment are cleared. Raise the nose wheel with the aircraft brakes set;

c) When flight crew receives clearance for the pushback, headset man shall ensure all chocks and grounding cables are removed before informing flight crew to release aircraft parking brakes;

d) Face the aircraft and do not walk in the path of the remote-controlled Air tug pivot area during pushback;

e) Do not leave the remote-controlled Air tug connected to the aircraft unattended with engine running;

f) Perform the pushback at no more than 5 km/h.

g) After disconnecting the remote-controlled Air tug at the end of push, position the chock at the front of the nose gear;

h) After disconnecting the tug from the nose gear, position the remote-controlled Air tug such that it is visible from the cockpit before removing the bypass pin;

i) Once clearance signal is given, display the bypass pin to the flight deck when they are cleared from the taxiway;

j) For the safety of the operator, remote-controlled pushback should not be performed in the event of lightning warning;

k) Remain on standby at the stand until the aircraft taxis away on its own;

l) Ensure that the stand is clear of FOD for the next aircraft. If FOD is of suspected aircraft parts, inform the ground engineer immediately.

13 Aircraft Towing

13.1 Operations

13.1.1 An overall-in-charge shall be identified for aircraft towing operation. The assigned personnel are usually the flight deck engineer. The overall-in-charge shall brief all other personnel involved in the operation of their responsibilities:

a) Ensure the latest aerodrome map is used by the towing crew;

b) Ensure the towing crew is familiar with the taxiway layout of the airport;

c) Personnel should be instructed on the hazards associated with aircraft movement operations e.g. engine ingestion, nose-wheel movement, aircraft track, visibility;

d) Personnel performing the functions required by the operation shall be positioned away from hazard zones;

e) Only those persons required to perform operating functions are in the operating area;

f) Communication with the flight deck or brake operator should, if possible, be achieved in a manner that eliminates the need for personnel to walk near the aircraft nose-gear or the Air tug during the operation e.g. use of flexible cord to Air tug driver, or cordless system;

g) Standard phraseology should be used for all verbal communication between the flight deck or brake operator and ground personnel;

h) Provision should be made for a back-up communication system in the event of a failure of the primary system;

i) Standard hand signals should be used for manual communications;

j) Prior to moving an aircraft all personnel involved in the operation shall be briefed and agreed on how communication should be performed and towing maneuverer;

k) SOPs should be developed, in accordance with airframe manufacturers' recommendations for each type of aircraft movement operation;

l) Personnel performing marshalling or wing-walking functions SHALL utilize, during daytime operations, either wands or mitt of a high visibility colour or, during low visibility / night operations, lighted wands;

m) Operators should reduce driving speed when operating on wet surface and/or when visibility is low;

n) The general area of the operation shall be kept clear of GSE;

o) Towing crew shall never enter runways and rapid exit taxiways;

p) Towing crew shall request for follow-me service when required to do so;

q) Towing crew shall always seek clarification if doubtful of towing instructions;

r) Towing crew shall inform ACC if they are unable to execute an instruction / face difficulty in executing an instruction;

13.2 Towing Requirements

a) When towing an aircraft into the designated stand, check that there is no FOD in the ERA and overlapping ERA/Keep Clear zones. The surface condition shall be safe for flight operations;

b) Prior to commencement of a towing operation, establish communications between the Air tug operator and the flight deck and/or brake operator;

c) When communication is lost during a towing operation, stop movement immediately;

d) Ensure hydraulic system pressure for aircraft braking and/or the brake accumulator is within required pressure range;

e) Ensure any required electrical systems for towing are energised;

f) Ensure all gear safety pins/sleeves are installed, and after tow, ensure all pins are removed and stowed;

g) Ensure that the brake operator in the cockpit is qualified;

h) Establish communication with the brake operator by means of the interphone system;

i) Ensure that wheel chocks are positioned at the end of the maneuverer, prior to disconnecting the Towbarless Air tug or tow bar.

Caution: Inform the brake operator / flight crew and/or contact the maintenance department for technical inspection if you observe any type of excessive fluid leakage; notice any signs of unmarked aircraft damage; observe any fault, failure, malfunction or defect which you believe may affect the safe operation of the aircraft for the intended flight.

13.3 Towing Manoeuvring

13.3.1 The towing manoeuvring procedure is similar for all aircraft types. The following minimum safety precautions and procedures shall be followed prior to and during aircraft towing operations:

a) Align the Towbarless Air tug and tow bar combination to the aircraft centreline before the aircraft movement;

b) Raise the tow bar wheels completely before the start of aircraft movement (if used);

Caution: If the headset man is not in the Air tug/Towbarless Air tug, he shall stay clear of the nose gear when the aircraft is moving and remain clear of the hazard zones during operation and avoid walking backwards when dispatching the aircraft.

c) Prior to the aircraft movement, make sure that the parking brakes are released, and the anti-collision lights are switched on;

d) Wait for the authorisation of the flight crew or brake operator before moving the aircraft;

e) Start the pushback operation on a straight line;

f) Keep the manoeuvring speed at minimum and apply the vehicle brakes gently;

g) Do not exceed the towing speed limit as regulated by the towing equipment, aircraft and/or airport;

h) Use relevant apron lines as guidance during manoeuvring to ensure safe obstacle clearance;

i) Align the aircraft such that the taxiway centreline is in between the aircraft main landing gears to provide sufficient wing and tail clearance;

j) Maintain a safety distance between vehicle;

k) Stop 50 meters before a taxiway intersection, if a stop is required;

l) Avoid sharp turns, which results in excessive tire scrubbing;

m) If ground crew require guidance to locate the taxiway centreline, headset man shall inform flight deck crew to request Changi Tower to switch on the taxiway centreline lights; n) Make all stops smoothly;

n) When arriving at the allocated position, move the aircraft in a straight line for a few meters to ensure that the nose wheels are in the straight-ahead position. This relieves any tensional stress applied to landing gear components and tires;

o) Apply the Air tug parking brake after a complete stop;

p) Headset man shall ensure that the aircraft stops at the designated aircraft-type stop bar;

q) Upon completion of the towing, headset man shall ensure that chocks are placed at the aircraft wheels and cones placement done in accordance with the airline's requirements or as recommended by IATA (IGOM Chapter 4.3).

Note. – Some of these precautions may not be applicable to Towbarless vehicles.

13.4 Manoeuvring During Adverse Weather Conditions

13.4.1 During adverse weather conditions (haze, rain, etc.) visibility and traction will be affected. The tractor driver shall reduce and adapt vehicle speed as required by the present conditions.

13.5 Radio Telephony Failure During Towing

13.5.1 If 3-way communications between cockpit / headset man and Air tug / Towbarless Air tug operator is not established, towing cannot commence. Towing team shall inform Aerodrome Duty/ Manager to facilitate the tow with a “Follow-Me” car.

13.6 Wing walker

13.6.1 Wing walkers are deployed, the wing walkers or other assist personnel shall:

a) Be under the direction of the responsible ground crew at all times;

b) Use proper hand marshalling signals and clear of engine hazard zones;

c) Use 2 marshalling wands, either day-wands or illuminated wands for low visibility operations;

d) Ensure the aircraft movement path is clear of any obstructions, other aircraft, vehicles etc;

e) Provide “Safe to Proceed” clearance signals at all times to the headset man by using a distinct “Pendulum” motion of the arm;

f) Continue to monitor the aircraft path until the aircraft is stopped;

g) Give the “AIRCRAFT HOLD” signal to the towing crew when the visual “Brakes Set” signal has been received from the #1 Man. (crossed wands may be overhead or in front of chest).

13.7 Incidents During Towing

13.7.1 The Air tug driver and brake operator shall continuously keep each other informed of any incident that happens during towing.

14 Aircraft Fuelling

14.1 General

14.1.1 The FSZ is defined as an area of at least 3 meters in any direction from any centre point of all fuel vent exits, refuelling plugs, aircraft refuelling ports, fuel hydrants, fuel hoses and fuelling truck (fuel dispenser).

14.1.2 The responsible ground personnel / refuelling operator shall ensure that he:

a) Is issued with a valid Aerodrome's ADP to drive and operate that specific equipment type;

b) Wears a high visibility safety vest at all times;

c) Does NOT smoke;

d) Observes ramp safety rules (e.g. No horseplay on the job);

e) Observes the danger areas / hazards on the ramp and take the necessary precautions for personnel and aircraft safety. Report oil spills covering an area more than 4 m²;

f) Is aware of the location of the nearest emergency stop button;

g) Does not litter or leave any refuse or FOD within the aircraft stand;

h) Shall not consume any food or beverage and shall not feed any bird or animal;

i) Checks that there is an unobstructed vehicle escape route.

14.1.3 The fuelling operator shall ensure that the fuelling vehicle:

a) Is issued with a valid Aerodrome's AVP and equipped with a valid fire extinguisher and current inspection tags;

b) Has "no smoking" signs on both sides;

c) Has externally mounted emergency engine stop controls clearly identified;

d) Is fitted with aircraft wing proximity sensors on the elevating platform;

e) Is equipped with spill containment kit;

14.2 Fuelling Vehicles Safety Driving & Parking Inside ERA

14.2.1 The following precautions shall be taken when operating fuelling vehicles within the ERA:

a) Only move fuelling vehicles towards the aircraft when all the following criteria is met:

1) Aircraft has come to a complete stop;
2) Engines have been switched off and are spooling down;

3) Anti-collision lights are switched off;
4) Wheel chocks are positioned; and
5) Ground / Flight Crew communication has been established and headset man has given the 'thumbs up' signal.

b) Do not approach the aircraft until all safety cones have been placed;

c) Fuelling vehicle is moved forward into fuelling position;

d) Do not drive fuelling vehicles more than 5 km per hour;

e) Test the brakes as soon as possible and before leaving the depot. The approach to an aircraft shall be such that collision will be avoided in the event of vehicle brake failure;

f) Do not use handheld PEDs when operating vehicles or equipment;

g) Do not carry extra personnel during movement of fuelling vehicles unless that person is seated in a passenger seat provided in the vehicle or standing in a section of the vehicle which has been constructed for standing passengers;

h) Do not drive the fuelling vehicles across the path of embarking and disembarking passengers. Aircraft passengers always have right of way;

i) Check that there is an unobstructed vehicle escape route;

j) Do not leave any vehicle unattended with its engine running;

k) One aerobridge or mobile passenger step or integral stairs shall be positioned with the aircraft door fully opened for evacuation of passengers when fuelling with passengers on board;

l) Sufficient evacuation areas on ground beneath the aircraft exit doors and are clear of obstruction.

14.3 Pre-fuelling Operations

14.3.1 The fuelling operator shall ensure:

a) Vehicle stabilisers are fully in contact with the tarmac before mounting on the elevating platform to connect the fuelling hose to aircraft coupling;

b) Fuelling vehicle is positioned correctly to ensure that strain is not applied to fuelling hoses when connected to the aircraft;

c) Bonding connections are established between fuelling vehicle and aircraft before fuelling operations;

d) Lanyard connected to the hydrant pit valve is free of obstruction and readily accessible to the fuelling operator and ground personnel;

e) Hydrant pit valve is identified by a four-winged flag, cone or equivalent;

14.4 Fuelling Operations

14.4.1 The fuelling operator shall:

a) Inform flight crew or qualified personnel onboard the aircraft when fuelling is about to begin or has been completed;

b) Use hand held dead man device throughout the operation and remains outside the vehicle cab at all times;

c) Ensure fuelling hoses have sufficient length to allow the fuelling platform to be fully lowered while hoses/coupling are connected to the aircraft;

d) Ensure fuelling hoses are not entangled on equipment during movement of fuelling platform;

e) Ensure that fuelling platform is not raised or lowered when refuelling operations are taking place;

f) Ensure that fuelling vehicle has working interlock mechanisms to prevent vehicle from moving while hoses are connected to the aircraft;

g) Ensure that non-refuelling operators do not go over the fuelling hoses;

h) Exercise extreme caution when fuelling an aircraft during lightning and thunderstorms;

i) Suspend fuelling operations during severe thunderstorms;

j) Conduct post fuelling operations 360 degree walk to ensure all hoses are disconnected and stowed correctly;

k) Clear FOD if any.

14.4.2 The refuelling operator shall shut down the refuelling operation whenever:

a) Any fuel is discovered to be leaking or spilling from fuel servicing equipment or hoses;

b) Any auxiliary or GPUs and other heating devices are not positioned at least 6 meters away from fuelling vehicles and clear of wing tank vents. The unit shall not be disconnected or switches-operated during fuelling;

c) Any vehicle is driven over any hose or bonding cable laid on the apron used for refuelling aircraft;

d) Anyone is using PEDs (e.g. cell phone, camera, PDA also known as palmtop computer, radios) within 3 meters of FSZ when refuelling is in progress, unless such device is intrinsically-safe certified;

e) Any passengers are within 3 meters in any direction from the centre point of all fuel vent exits, refuelling plugs, aircraft refuelling ports, fuel hydrant, fuel hoses and fuelling vehicles.

Note. – Refuelling operations to be suspended during severe thunderstorms according to respective fuelling companies' guidelines.

14.5 Fuel Spillage

14.5.1 Small spills that need no emergency action shall be cleaned up with use of oil absorbent or rags and discarded properly. Saw dusts and any other absorbent materials shall not be used.

14.5.2 In the event of an overflow of fuel from a hydrant pit, the aircraft fuelling operator shall stop the fuel flow by releasing the Deadman switch and pulling the lanyard to shut off the hydrant pit quick release valve. If necessary, to activate the emergency stop button.

14.5.3 Report any spills extending 4 m² to the Pilot-in-Command, the airline representative and / or the ground engineer in charge of the flight.

14.5.4 Assist to secure the area 15 meters from the contaminated area until the affected area has been cleaned up.

15 Aircraft Marshalling Signals

15.1 General

15.1.1 All marshalling hand signals shall be in conformance to Annex 2 – Rules of the Air.

15.1.2 Prior to using the hand signals, the signalman shall ascertain that the area within which an aircraft is to be guided is clear of objects

15.1.3 The signalman shall give marshalling hand signals from a position forward of the aircraft while facing and within view of the pilot.

15.1.4 Use illuminated torch lights / wands to improve the visibility of the hand signals in the following situations:

a) Insufficient apron lighting;

b) Poor visibility;

c) Night conditions;

d) When required by local Airport Authorities or regulations.

15.1.5 The hand signals are illustrated with the use of wands. The meaning of the signals remains the same with bats, gloves and illuminated torch lights.

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16 Appendices

16.1 Appendix 1 – Ground Handling Forms and Checklist

1 The forms and checklist available for Ground Handling can be found in the CAAM website (https://www.caam.gov.my/e-services-forms/air-operations/)

No	Form	Form Reference Number
1	Ground Handling Application Form	CAAM/BOP/GH/01
2	Ground Handling Audit Response Form	CAAM/BOP/GH/02
3	Ground Handling Accountable Manager (AM) and Nominated Post Holder (NPH) Form	CAAM/BOP/GH/03
4	Ground Handling Compliance Checklist	CAAM/BOP/GH/04
5	Ground Handling Manual Components Checklist	CAAM/BOP/GH/06

16.2 Appendix 2 – Ground Handling Mandatory and Functional Trainings

Type	Course	Validity (Years)	GH CATEGORY											
			1	2	3	4	5	6	7	8	9	10	11	12
Mandatory *(To be completed within 6 months from date of employment)*	SMS AWARENESS	2	x	x	x	x	x	x	x	x	x	x	x	x
	AVSEC AWARENESS	3	x	x	x	x	x	x	x	x	x	x	x	x
	HUMAN FACTOR	2	x	x	x	x	x	x	x	x	x	x	x	x
	AIRSIDE SAFETY	2	x	x	x	x	x	x	x	x	x	x	x	x
	ERP	2	x	x	x	x	x	x	x	x	x	x	x	x

*Note: It is sufficient for a staff member to take the course **once**, for Ground Handling of various categories within 6 months from date of employment.

Type	Courses (According to category)	Initial & Recurrent	Validity of 2 years
Functional	Cat 1 – Ground administration & supervision	Training matrix and training program shall be determined by GHSP in their Training Manual which is approved by CAAM. All initial training shall be conducted with face to face/ classroom. All recurrent training may be conducted online or face to face/ classroom. All Trainer shall require approval from CAAM before he/she can conduct training. Approval validity of 3 years. Trainer evaluation can be made on actual class or simulation class.	
	Cat 2 – Passenger handling		
	Cat 3 – Freight & mail handling (documentation)		
	Cat 4 – Aircraft services		
	Cat 5 – Aircraft maintenance		
	Cat 6 – Flight operations & crew administration		
	Cat 7 – Surface transport		
	Cat 8 – Catering services		
	Cat 9 – Baggage handling		
	Cat 10 – Freight & mail handling		
	Cat 11 – Ramp handling		
	Cat 12 – Fuel & oil handling		

Training record shall be retained as long as the personnel still serving the GHSP. It can be retained in softcopy or hardcopy version.

GHSP Specific Training by Category

Type	Category of Ground Handling Services	Courses/ Modules (According to category)
Functional	Cat 1 – Ground administration & supervision	1. Company Induction Program 2. Station Management 3. Basic Ground Operations 4. Load Control including Weight & Balance 5. Dangerous Goods (Category 8 & 10) 6. First Aid Awareness
Type	Category of Ground Handling Services	Courses/ Modules (According to category)
Functional	Cat 2 – Passenger handling	1. Dangerous Goods (Category 9) 2. Passenger Services 3. Special Passenger Handling 4. Aircraft Door Handling 5. On-Job-Training (OJT)
Type	Category of Ground Handling Services	Courses/ Modules (According to category)
Functional	Cat 3 – Freight & mail handling (documentation) Cat 10 – Freight & mail handling	1. General Ramp Safety 2. Safety Instruction for Operating Ground Support Equipment (GSE) on the Ramp 3. Basic Cargo 4. Dangerous Goods (Category 6, 7, 8 & 10) 5. Weight & Balance (Cargo) 6. Perishable Regulations 7. Forklift Handling 8. Tractors Handling 9. Cranes Handling 10. Boom lifts Handling 11. On-Job-Training (OJT)

Type	Category of Ground Handling Services	Courses/ Modules (According to category)
Functional	Cat 4 – Aircraft services	1. General Ramp Safety 2. Safety Instruction for Operating Ground Support Equipment (GSE) on the Ramp 3. Aircraft Cleaning (External & Internal) 4. Aircraft Lavatory Servicing 5. Aircraft Potable Water Servicing 6. Air-conditioner external unit 7. On-Job-Training (OJT)
Type	Category of Ground Handling Services	Courses/ Modules (According to category)
Functional	Cat 5 – Aircraft maintenance	1. Station Management • Other training syllabus shall comply to Part 145 requirement
Type	Category of Ground Handling Services	Courses/ Modules (According to category)
Functional	Cat 6 – Flight operations & crew administration	1. General Ramp Safety 2. Navigation 3. Air Traffic Management 4. Meteorology 5. Weight & Balance 6. Flight Planning & Monitoring 7. Communication 8. On-Job-Training (OJT)
Type	Category of Ground Handling Services	Courses/ Modules (According to category)
Functional	Cat 7 – Surface transport	1. General Ramp Safety 2. Airside Driving 3. Defensive Driving 4. Customer Services (specific to GHSP handling private aircraft) 5. Dangerous Goods (Category 8) 6. On-Job-Training (OJT)
Type	Category of Ground Handling Services	Courses/ Modules (According to category)

Functional	Cat 8 – Catering services	1. Food Safety Assurances Program 2. Basic Food Hygiene and Handling 3. Food Handler Training Course 4. GMP/ HACCP/ Halal Awareness Training 5. On-Job-Training (OJT)
Type	Category of Ground Handling Services	Courses/ Modules (According to category)
Functional	Cat 9 – Baggage handling	1. General Ramp Safety 2. Basic Baggage Handling 3. Airside Driving 4. Defensive Driving 5. Dangerous Goods (Category 8) 6. On-Job-Training (OJT)
Type	Category of Ground Handling Services	Courses/ Modules (According to category)
Functional	Cat 11 – Ramp handling	1. General Ramp Safety 2. Safety Instruction for Operating Ground Support Equipment (GSE) on the Ramp 3. Ground to Cockpit Communication 4. Dangerous Goods (Category 8) 5. Airside Driving 6. Defensive Driving 7. Aircraft Pushback 8. Aircraft Towing 9. Aircraft Marshalling 10. GPU Handling 11. On-Job-Training (OJT) – with specific GSE in used

Type	Category of Ground Handling Services	Courses/ Modules (According to category)
Functional	Cat 12 – Fuel & oil handling	1. General Ramp Safety 2. Airside Driving 3. Defensive Driving 4. Product Inspector Course or equivalent 5. Fire Safety 6. Operation Procedures Training 7. Equipment Serviceability and Maintenance training 8. Aerodrome Familiarisation 9. On-Job-Training (OJT)

Note 1. – The above functional training courses/modules are expected to be completed by all Self-Handlers and GHSP. The name of courses/modules maybe differ from the table above however Self-handlers and GHSP must ensure the content of the courses/modules covers its approved operation categories.

Note 2. – Training record shall be retained as long as the personnel still serving the GHSP. It can be retained in softcopy or hardcopy version

16.3 Appendix 3 – List of Mandatory Manuals

LIST OF MANDATORY MANUALS/DOCUMENTS

No		Main Base	Hub	Station	Notes	Remarks
REGULATORY						
1	Civil Aviation Regulation (CAR 2016)	X	X	X	H/S	Latest Update
2	Malaysia CAD or Notices	X	X	X	S	
3	Relevant Local AIP			X	S	GH Category 6
4	Relevant Local AIC			X	S	GH Category 6
5	Relevant Local Civil Aviation Regulations	X	X	X	H/S	Link address
6	Dangerous Goods Handbook (Emergency Response Guidance)	X	X	X	H/S	GH Cat 2, 3, 9 and 10
7	Dangerous Goods Regulations (IATA)	X	X	X	H/S	GH Cat 2, 3, 9 and 10
8	Live Animal Regulations (IATA)	X	X	X	H/S	GH Cat 2, 3, 9 and 10
9	Perishable Cargo Regulations	X	X	X	H/S	GH Cat 2, 3, 9 and 10
10	ICAO Annex 1-19	X			H/S	
CERTIFICATES						
1	Malaysia GH TA Certificate	X	X	X	H	Original & CTC
GROUND HANDLING						
1	*Ground Operations Manual/ Ground Handling Manual	X	X	X	H/S	Applicable GH Category
2	*Ground Training Manual	X	X	X	H/S	Applicable GH Category
3	*SMS Manual	X	X	X	H/S	
4	*Emergency Response Plan/ Manual	X	X	X	H/S	For all stations
5	*Local Airport Emergency Plan/Manual	X	X	X	H/S	
6	*Aircraft Weight and Balance Manual	X	X	X	H/S	Applicable GH Category
7	*Flight Dispatch Manual	X	X	X	H/S	Applicable GH Category
OTHERS						
1	First Aid - Booklet/Poster/References	X	X	X	H	
2	Emergency Telephone List	X	X	X	H	
3	Station Head Handbook	X	X	X	H/S	If applicable

Note 1. – S = Soft copy, H = Hard copy, H/S = Hard copy or Soft copy

*Note 2. – The usage of soft copies for documents marked with an * is dependent on the TAC holder demonstrating reliability of their Electronic Document Management System*

16.4 Appendix 4 – DG Training Requirement Matrix

ASPECTS OF TRANSPORT OF DANGEROUS GOODS BY AIR WITH WHICH THEY SHOULD BE FAMILIAR, AS A MINIMUM	SHIPPERS AND PACKERS		FREIGHT FORWARDER			OPERATORS AND GROUND HANDLING AGENTS					SECURITY SCREENER	
	CATEGORY											
	1	2	3	4	5	6	7	8	9	10	11	12
General philosophy	X	X	X	X	X	X	X	X	X	X	X	X
Limitations	X		X	X	X	X	X	X	X	X	X	X
General requirements for shippers	X		X			X						
Classification	X	X	X			X						X
List of dangerous goods	X	X	X			X				X		
General packing requirements	X	X	X			X						
Packing instructions	X	X	X			X						
Labeling and marking	X	X	X	X	X	X	X	X	X	X	X	X
Shipper's Declaration and other relevant documentation	X		X	X		X	X					
Acceptance procedures						X						
Recognition of undeclared dangerous goods	X	X	X	X	X	X	X	X	X	X	X	X
Storage and loading procedures					X	X		X		X		
Pilots' notification						X		X		X		
Provisions for passengers and crew	X	X	X	X	X	X	X	X	X	X	X	X
Emergency procedure	X	X	X	X	X	X	X	X	X	X	X	X

CATEGORY	DETAILS
1	Shippers and persons undertaking the responsibilities of shippers', including operator's staff acting as shippers, operator's staff preparing dangerous goods as Company Materials (COMAT)
2	Packers
3	Staff of freight forwarders involved in processing dangerous goods
4	Staff of freight forwarders involved in processing cargo or mail (other than dangerous goods)
5	Staff of freight forwarders involved in the handling, storage and loading cargo or mail
6	Operator's & Ground Handling Agent's staff accepting dangerous goods and DG coordinator as specified in paragraph 1.4 Chapter 2
7	Operator's and Ground Handling Agent's staff accepting cargo or mail (other than dangerous goods)
8	Operator's and Ground Handling Agent's staff involved in the handling, storage and loading of cargo or mail and baggage
9	Passenger handling staff
10	Flight crew members, loadmasters, load planners and flight operations officers / flight dispatchers
11	Crew members (other than flight crew members)
12	Security staff who deal with the screening of passengers and crew and their baggage and cargo or mail, e.g., security screeners, their supervisors and staff involved in implementing security procedures