HONG KONG EXPRESS AIRWAYS
OPERATIONS MANUAL

HKEA OM-A

Administration

Issue 1.3

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HKEA OM-A – Administration – Table of Contents

Chapter 0 – Administration and Control of Operations Manual

0.1 Hong Kong Express Airways Operations Manual

The Hong Kong Express Airways Operations Manual suite (HKEA OM) is the principle documents governing the conduct of Hong Kong Express Airways (HKEA) operations. The content of these manuals complies with:

- The AN(HK)O and the provisions of Hong Kong Express Airways Air Operators Certificate (AOC) and Operations Specifications (OPS SPECS) as issued and approved by the Hong Kong Civil Aviation Department (HKCAD).
- The HKCAD publication 'Air Operator's Certificates Requirements Document' (CAD 360) and other requirements documents published by the HK CAD from time to time;
- Additional rules and regulations applied by States within which HKEA is authorized to conduct flight operations; and
- Applicable ICAO Standards and Recommended Practices;

The HKCAD may exceptionally and temporarily grant an exemption from the applicable provisions of the above only when satisfied there is justifiable need, and subject to compliance with any supplementary condition(s) that the HKCAD considers necessary in order to assure an acceptable level of safety in each particular case.

The HKEA OM contains all operating policies, procedures, instructions and information necessary for HKEA operations personnel, and such personnel in related contact activities, to perform their duties in compliance with the above requirements.

All operations personnel shall either have easy access to those parts of the HKEA OM that are relevant to their duties, or shall have been issued with a personal copy of those parts. All Flight Crew and Cabin Crew shall have access to a digital copy of the operations manual.

The HKEA OM is written in the English Language. All operations personnel shall be able to understand the English Language and are required to comply with all the procedures and provisions contained in the HKEA OM.

The HKCAD has been provided with a copy of the HKEA OM and receives all amendments and revisions.

0.1.1 Terms Used in the Operations Manual

For conciseness the pronoun “he” is used throughout the text. Where appropriate the pronoun “she” may be substituted in meaning.

When used in the OM the following terms shall have the meaning outlined below:

“**Shall**”, “**will**” and “**must**” or an active verb in the imperative sense means that the application of a rule, procedure or provision is mandatory.

“**Should**” means the application of a procedure or provision is recommended.

"**May**" means the application of a procedure or provision is optional.

"**No person may**..." or "**a person may not**..." means that no person is required, authorized or permitted to do the act concerned.

"**Approved**" means the HKCAD has reviewed the method, procedure or policy in question and issued a formal written approval.

"**Acceptable**" means the HKCAD or the airline has reviewed the method, procedure or policy and has neither objected to nor approved its proposed use or implementation.

"**Prescribed**" means the HKCAD or the airline has issued a written policy or methodology that imposes either a mandatory requirement, if it states "shall", "**will**" or "**must**" or an action verb in the imperative sense, a recommendation if it states "should" or a discretionary requirement if it states "may".

"**Note**" is used when an operating procedure, technique, etc, is considered essential to be emphasized.

"**Caution**" is used when an operating procedure, technique, etc may result in damage to equipment if not carefully followed.

"**Warning**" is used when an operating procedure, technique, etc, may result in injury or loss of life if not carefully followed.

0.2 Scope and Content

0.2.1 Operations Manuals

The HKEA Manual suite is divided into four parts; A, B, C and D, which are owned and controlled by Flight Operations Department. The specific manuals are;

- HKEA OM-A Administration
- HKEA OM-B Airbus A320
- HKEA OM-B Safety and Emergency Procedures
- HKEA OM-B Performance
- HKEA OM-C Route and Aerodrome Instructions and Information
- HKEA OM-D Aircrew Training and Checking

The HKEA OM-A contains the non-type related operational policies, instructions and procedures required for a safe operation. It details the duties and responsibilities of all ground and flight personnel and their interrelationship with the operation as a whole.

HKEA OM-B contains all aircraft related instructions and procedures required for the safe operation of an aircraft type. It takes account of any difference between variants or individual aircraft used by the company. As the contents of the HKEA OM-B is too large for one manual, it is divided into several manuals.

HKEA OM-C contains specific instructions and information pertaining to navigation, communication and airports within the HKEA approved area of operation.

HKEA OM-D contains all the training policies, instructions and qualifications required to qualify pilots and cabin crew for the safe operation of HKEA's aircraft.

The Cabin Crew section manuals are owned by other section but are closely related to flight operations

- Cabin Crew Operations Manual (CCOM)
- Cabin Crew Services Manual (CCSM)

0.2.2 Aircraft Manuals

The following aircraft specific manuals are considered to form part of the operations manual suite.

- A320 Airplane Flight Manual (AFM)
- A320 Quick Reference Handbook (QRH)
- A320 Flight Crew Operating Manual (FCOM)
- A320 Flight Crew Techniques Manual (FCTM)
- A320 Minimum Equipment List (MEL)

0.2.3 Route Manuals

The following NavTech manuals are considered to form part of the operations manual suite.

- Navtech Flight Information Supplement Booklet
- Navtech Asia, Australasia & Pacific Supplement Booklet
- Navtech Route Manual Destination
- Navtech Route Manual Alternate

0.3 Captain's Brief

For flights on routes not routinely flown, the content of the operations manuals may not fully cover the operation to be conducted. In these circumstances, the GMF shall provide the Commander with a detailed brief. The brief should include guidance on the schedule to be maintained, the details of the routes to be flown, aircraft performance data, specific airport operating minima for all airports likely to be used, including alternates and details of the navigation and terrain clearance procedures to be used.

0.3.1 Abbreviations

AAL	Above Aerodrome Level
A/C	Aircraft
ACN	Aircraft Classification Number
ADD	Acceptable Deferred Defect
ADS	Automatic Dependent Surveillance
AFM	Aeroplane Flight Manual
AFS	Automatic Flight System
AGL	Above Ground Level
AH	Alert Height
AIS	Aeronautical Information Service
ALS	Approach Light System
ALT	Altitude
ALTN	Alternate
AMM	Aircraft Maintenance Manual
AMSL	Above Mean Sea Level
AOA	Angle Of Attack
AOC	Air Operator Certificate
A/P	Auto-Pilot
ASDA	Accelerate-Stop Distance Available
ASR	Air Safety Report
ASU	Air Starter Unit
ATA	Actual Time of Arrival
ATC	Air Traffic Control
ATD	Actual Time of Departure
ATHR	Autothrust
ATIS	Automatic Terminal Information Service
ATPL	Airline Transport Pilot License
AWO	All Weather Operations
BALS	Basic Approach Light System
BARO	Barometric
BAT	Battery
BRNAV	Basic Area Navigation
C	Celsius, Centigrade
CAPT	Captain
CAS	Calibrated Airspeed
CAT	Clear Air Turbulence
CAVOC	Ceiling and Visibility OK
CB	Cumulonimbus
CCOM	Cabin Crew Operating Manual
CCQ	Cross Crew Qualification
CDL	Configuration Deviation List
CDFA	Continuous descent final approach
CEO	Chief Executive Officer
CFIT	Controlled Flight Into terrain
CG	Centre of Gravity
CM1/2	Crew Member 1 (LH) / 2 (RH)
CMD	Command
CP	Critical Point (EDTO)
CRM	Crew Resource Management

CTR	Centre
CVR	Cockpit Voice Recorder
DA	Decision Altitude
DEG	Degree
DEST	Destination
DH	Decision Height
DIST	Distance
DME	Distance Measuring Equipment
DOI	Dry Operating Index
DOW	Dry Operating Weight
EDPEEP	EDTO Entry Point
EDTO	Extended Diversion Time Operations
EFOB	Estimated Fuel On Board
EGPWS	Enhanced GPWS
EGT	Exhaust Gas Temperature
ELEC	Electrical
ELEV	Elevation
ELT	Emergency Locator Transmitter
EMER	Emergency
ENG	Engine
EO	Engine Out
EOSID	Engine Out SID
ERA	En Route Alternate
ETA	Estimated Time of Arrival
ETD	Estimated Time of Departure
ETP	Equi-Time Point
EXP	Exit Point (EDTO)
EXT	External
F	Fahrenheit
FAF	Final Approach Fix
FALS	Full Approach Light System
FAP	Final Approach Point
FAR	Federal Aviation Regulations
F/C	Flight Crew
FCL	Flight Crew Licensing
FCOM	Flight Crew Operating Manual
FCTM	Flight Crew Techniques Manual
FIR	Flight Information Region
FL	Flight Level
FLT	Flight
FMA	Flight Mode Annunciator
FMGS	Flight Management Guidance System
F/O	First Officer
FOB	Fuel On Board
F-PLN	Flight Plan
FPV	Flight Path Vector
ft, FT	Foot (Feet)
FTL	Flight Time Limitation
FWD	Forward
g, G	Gram
GMT	Greenwich Mean Time

GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GPU	Ground Power Unit
GPWS	Ground Proximity Warning System
GS	Ground Speed
G/S	Glide Slope
GW	Gross Weight
H	Hour
HDG	Heading
HF	High Frequency (3 to 30 MHz)
Hg	Mercury
HIALS	High Intensity Approach Light System
HIRL	High Intensity Runway Lights
HP	High Pressure
HPa	Hecto Pascal
HYD	Hydraulic
Hz	Hertz (cycles per second)
IAF	Intermediate Approach Fix
IALS	Intermediate Approach Light System
IAP	Instrument Approach Procedure
IAS	Indicated Air Speed
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IDENT	Identification
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IMC	Instrumental Meteorological Conditions
in, IN	Inch(es)
INOP	Inoperative
ISA	International Standard Atmosphere
kg, KG	kilogram
kHz	kilohertz
km, KM	kilometre
kt, KT	knot
l, L	Litre
LAT	Latitude
lb	Pound (weight)
LDA	Landing Distance Available
LDG	Landing
L/G	Landing Gear
LH	Left Hand
LOC	Localizer
LOFT	Line Oriented Flight Training
LOSA	Line Operations Safety Audit
LONG	Longitude
LP	Low Pressure
LVL	Level
LVP	Low Visibility Procedures
LVTO	Low Visibility Takeoff
LW	Landing Weight
M	Mach

m, M	metre
MAC	Mean Aerodynamic Chord
MAG	Magnetic
MAP	Missed Approach Point
MAX	Maximum
mb, MB	Millibar
MCT	Maximum Continuous Thrust
MDA/H	Minimum Descent Altitude / Height
MEL	Minimum Equipment List
MET	Meteorological
METAR	Meteorological Aerodrome Report
MHz	Megahertz
MID	Middle Runway Portion
MIALS	Medium Intensity Approach Light System
MIN	Minimum, Minute
MIRL	Medium Intensity Runway Light
MLW	Maximum Landing weight
mm, MM	Millimetre
MMEL	Master Minimum Equipment List
MMO	Maximum Operating Mach
MOCA	Minimum Obstruction Clearance Altitude
MOR	Mandatory Occurrence Reporting
MORA	Minimum Off-Route Altitude
MRVA	Minimum Radar Vectoring Altitude
MSA	Minimum Safe (or Sector) Altitude
MSG	Message
MSL	Mean Sea Level
MSN	Manufacturer's Serial Number
MTOW	Maximum Takeoff Weight
MZFW	Maximum Zero Fuel Weight
N/A	Not Applicable
NALS	No Approach Light System
NAV	Navigation
NAVAID	(Radio) Navigation Aid
NDB	Non Directional Beacon
NM	Nautical Miles
NORM	Normal
NOTAM	Notice To Airmen
NPA	Non Precision Approach
OAT	Outside Air Temperature
OCA/H	Obstacle Clearance Altitude / Height
OCC	Operational Control Centre
OEB	Operations Engineering Bulletin
OEW	Operating Empty Weight
OM	Outer Marker
OM	Operations Manual
OPS	Operations
OXY	Oxygen
PA	Passenger Address
PAPI	Precision Approach Path Indicator
PAR	Precision Approach Radar

PAX	Passenger
PBN	Performance Based Navigation
PCN	Pavement Classification Number
PED	Portable Electronic Devices
PERF	Performance
PF	Pilot Flying
PIREP	Pilot Report
PIC	Pilot In Command
PM	Pilot Monitoring
PNR	Point of No Return
POS	Position
PROC	Procedure
PSI	Pounds per Square Inch
PT	Point
PWR	Power
QFE	Field elevation atmosphere pressure
QNH	Sea level atmosphere pressure
QRH	Quick Reference Handbook
RA	Radio Altitude/Radio Altimeter
RA	Resolution Advisory
RAIM	Receiver Autonomous Integrity Monitoring
RAT	Ram Air Turbine
REF	Reference
REV	Reverse
RH	Right Hand
RNAV	Area Navigation
RNP	Required Navigation Performance
RPL	Repetitive flight plan
RPM	Revolutions Per Minute
RQRD	Required
RTA	Required Time of Arrival
RTO	Rejected Take Off
RTOW	Regulatory Takeoff Weight
RVR	Runway Visual Range
RVSM	Reduced Vertical Separation Minima
RWY	Runway
SAG	Safety Action Group
SAT	Static Air Temperature
SELCAL	Selective Calling
SID	Standard Instrument Departure
SIGMET	Significant Meteorological information
SIL	Service Information Letter
SMS	Safety Management System
SOP	Standard Operating Procedures
SPECI	Aviation selected special weather report
SPD	Speed
SRA	Surveillance Radar Approach
SSR	Secondary Surveillance Radar
STAR	Standard Terminal Arrival Route
STD	Standard
STS	Status

SYS	System
t, T	Ton, Tonne, Temperature
TA	Traffic Advisory
TAD	Terrain Awareness Display
TAF	Terminal Aerodrome Forecast
TAS	True Air Speed
TAT	Total Air Temperature
TCAS	Traffic alert and Collision Avoidance System
TCF	Terrain Clearance Floor
TDZ	Touch Down Zone
TEMP	Temperature
TEMPO	Temporary
TERPS	(US) Standards for Terminal Instrument Procedures
THR	Thrust
TK	Tank
TMA	Terminal Manoeuvring Area
T/O	Takeoff
TOC	Top Of Climb
TOD	Top Of Descent
TODA	Takeoff Distance Available
TOGA	Takeoff/Go-Around
TORA	Takeoff Run Available
TOW	Takeoff Weight
TR	Temporary Revision
TRE	Type Rating Examiner
TRI	Type Rating Instructor
TRK	Track
TRTO	Type Rating Training Organisation
TWR	Tower
TWY	Taxiway
UHF	Ultra High Frequency (300 - 3000 MHz)
UM	Unaccompanied Minor
U/S	Unserviceable
UTC	Universal Time Co-ordinated
V	Volt
V1	Critical engine failure speed
V2	T/O safety speed
VAPP	Final Approach Speed
VASI	Visual Approach Slope Indicator
VFE	Maximum Velocity Flaps/slats Extended
VFR	Visual Flight Rules
VHF	Very High Frequency (30 - 300 MHz)
VMC	Visual Meteorological Conditions
VMCA	Minimum Control Speed in the Air
VMCG	Minimum Control Speed on Ground
VMIN	Minimum operating speed
VMO	Maximum operating speed
VOR	VHF Omni-directional Range
VR	Rotation speed
VREF	Landing reference speed
VS	Stall speed

V/S	Vertical Speed
VSI	Vertical Speed Indicator
WGS	World Geodetic System
WPT	Waypoint
WX	Weather
WXR	Weather Radar
XFR	Transfer
XTK	Cross track error
Z	Zulu time (UTC)
ZFCG	Zero Fuel Centre of Gravity
ZFW	Zero Fuel Weight

0.3.2 Definitions

Note: *Where necessary, specific terms are defined at the beginning of the s to which they are appropriate.*

Accelerate-Stop Distance Available (ASDA):
The length of the takeoff run available plus the length of Stopway, if such Stopway is declared available by the appropriate Authority and is capable of bearing the mass the aeroplane under the prevailing operating conditions

Accountable Manager:
The person acceptable to the Authority who has corporate authority for ensuring that all operations and maintenance activities can be financed and carried out to the standard required by the Authority and any additional requirements defined by the operator.

Aerodrome:
A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.

Aerodrome elevation:
The elevation of the highest point, of the landing area.

Aeroplane Flight Manual (AFM):
A manual, associated with the certificate of airworthiness, containing limitations within which the aircraft is to be considered airworthy, and instructions and information necessary to the flight crew members for the safe operation of the aircraft.

Air Operator Certificate (AOC):
A certificate authorising an operator to carry out specified commercial air transport operations

Airprox incident:
A situation in which, in the opinion of a pilot or controller, the distance between aircraft as well as their relevant positions and speed have been such that the safety of the aircraft involved was or may have been compromised.

Alternate aerodrome:
An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing. Alternate aerodromes include the following:

- Takeoff alternate: An alternate aerodrome at which an aircraft can land should this become necessary shortly after takeoff and it is not possible to use the aerodrome of departure.
- En-route alternate: An aerodrome at which an aircraft would be able to land after experiencing an abnormal or emergency condition while en route
- Destination alternate: An alternate aerodrome to which an aircraft may proceed should it become impossible or inadvisable to land at the aerodrome of intended landing.

Note: *The aerodrome from which a flight departs may also be an en-route or a destination alternate aerodrome for that flight.*

Altitude:
The vertical distance of a level, a point or an object considered as a point, measured from mean sea level.

Approved:
The Authority has reviewed the method, procedure or policy in question and issued a formal written approval.

Apron:
A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance.

Aquaplaning (or hydroplaning):
A situation where the tires of the aircraft are, to a large extent, separated from the runway surface by a thin fluid film.

Authority:
The competent body responsible for the safety of civil aviation in the state of the applicant or operator.

Braking action:
A report on the conditions of the airport movement areas, providing pilots the quality or degree of braking that may be expected. Braking action is reported in terms of: good, medium to good, medium, medium to poor, poor, nil or unreliable.

Calendar day:
The period of elapsed time, using Coordinated Universal Time (UTC) or local time, that begins at midnight and ends 24 hours later in the next midnight

Cabin attendant:
A crew member who performs, in the interest of safety of passengers, duties assigned by the operator or the Commander of the aircraft, but who shall not act as a flight crew member.

Certifying staff:
Those personnel who are Authorized by the Approved Maintenance Organisation in accordance with a procedure acceptable to the Authority to certify aircraft or aircraft components for release to service.

Certificate of release to service:
A certification signed by a licensed mechanic Authorized by the AOC holder indicating that work was performed in accordance with the AOC holder's maintenance manual, was inspected by a licensed mechanic, and the aircraft was found satisfactory for safe operation.

Circling:
The visual phase of an instrument approach to bring an aircraft into position for landing on a runway which is not suitably located for a straight-in approach.

Commander:
The pilot designated by the operator responsible for the operation and safety of the aircraft during flight time. He may delegate the conduct of the flight to another suitable qualified pilot. (See Pilot-In-Command)

Commercial air transport operation:
Aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.

Contaminated runway:
A runway is considered to be contaminated when more than 25% of the runway surface area (whether in isolated areas or not) within the required length and width being used is covered by the following:

- Surface water more than 3 mm (0.125 in) deep, or by slush, or loose snow, equivalent to more than 3 mm (0.125 in) of water; or
- Snow which has been compressed into a solid mass which resists further compression and will hold together or break into lumps if picked up (compacted snow); or
- Ice, including wet ice

Contingency fuel:
A quantity of fuel carried to compensate for items such as:

- Deviations of an individual aeroplane from expected fuel consumption data
- Deviations from forecast meteorological conditions
- Deviations from the planned routing and/or cruising levels/altitude

Continuous descent final approach (CDFA):
A specific technique for flying the final-approach segment of a non-precision instrument approach procedure as a continuous descent, without level-off, from an altitude/height at or above the Final Approach Fix altitude / height to a point approximately 15 m (50 feet) above the landing runway threshold or the point where the flare manoeuvre should begin for the type of aeroplane flown.

Converted Meteorological Visibility (CMV):
A value (equivalent to an RVR) which is derived from the reported meteorological visibility, as converted in accordance with the requirements in this subpart.

Co-pilot:
Pilot serving in any piloting capacity other than as pilot in command or Commander, but excluding a pilot who is on board the aircraft for the sole purpose of receiving flight instruction for a license or rating.

Crew member:
A person assigned by an operator to duty on an aircraft during flight time.

Crew Resource Management (CRM):
A program designed to improve the safety of flight operations by optimising the safe, efficient, and effective use of human resources, hardware, and information through improved crew communication and co-ordination.

Critical phases of flight:
Critical phases of flight are the takeoff run, the takeoff flight path, the final approach, the landing, including the landing roll, and any other phases of flight at the discretion of the Commander.

Damp runway:
A runway is considered damp when the surface is not dry, but when the moisture on it does not give it a shiny appearance.

Decision Altitude / Height (DA / DH):
A specified Altitude or Height (A/H) in the precision approach at which a missed approach must be initiated if the required visual reference to continue the approach has not been established

Note: *"Decision altitude (DA)" is referenced to mean sea level (MSL) and "decision height (DH)" is referenced to the threshold elevation.*

Note: *The "required visual reference" means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path.*

Dry runway:
A dry runway is one which is neither wet nor contaminated, and includes those paved runways which have been specially prepared with grooves or porous pavement and maintained to retain "effectively dry" braking action even when moisture is present.

Elevation:
The vertical distance of a point or a level, on or affixed to the surface of the earth measured from mean sea level.

Fail-Operational flight control system:
A flight control system is "fail-operational" if, in the event of a failure below alert height, the approach, flare and landing, can be completed automatically. In the event of a failure, the automatic landing system will operate as a "fail-passive" system.

Fail-Passive flight control system:
A flight control system is "fail-passive" if, in the event of a failure, there is no significant out-of-trim condition or deviation of flight path or attitude but the landing is not completed automatically. For a "fail-passive" automatic flight control system the pilot assumes control of the aeroplane after a failure.

Flight crew member:
A licensed crew member charged with duties essential to the operation of an aircraft during flight time.

Flight Level (FL):
A surface of constant atmospheric pressure which is related to a specific pressure datum, 1013.2 hectopascals (hPa), and is separated from other such surfaces by specific pressure intervals.

Flight Plan:
- Air Traffic Service (ATS) Flight Plan:

Specified information provided to ATS units, relative to an intended flight or portion of a flight of an aircraft.

- Operational Flight Plan:

The operator's plan for the safe conduct of the flight based on considerations of aircraft performance, other operating limitations, and relevant expected conditions on the route to be followed and at the aerodromes or heliports concerned.

Friction coefficient:
Relationship between the friction force acting on the wheel and the normal force on the wheel. The normal force depends on the weight of the aircraft and the lift of the wings.

Glide path:
A descent profile determined for vertical guidance during a final approach.

Ground visibility:
The visibility at an aerodrome, as reported by an accredited observer.

Heading:
The direction, in which the longitudinal axis of an aircraft is pointed, usually expressed in degrees from North (true, magnetic, compass or grid).

Height:
The vertical distance of a level, a point or an object, measured from a specified datum.

Instrument Approach Procedure (IAP):
A series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix or, where applicable, from the beginning of defined arrival route, to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en-route obstacle clearance criteria apply.

Instrument Meteorological Conditions (IMC):
Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, less than the minima specified for visual meteorological conditions.

Low Visibility Procedures (LVP):
Procedures applied at an aerodrome for the purpose of ensuring safe operations during Category II and III approaches and Low Visibility Takeoffs.

Low Visibility Takeoff (LVTO):
A takeoff where the Runway Visual Range (RVR) is less than 400 m.

Missed Approach procedure:
The procedure to be followed if the approach cannot be continued.

Net flight path:
The flight path determined for engine(s) failure case. It is established in such a manner that it represents the actual climb performance diminished by a gradient of climb of:

Takeoff (one engine failure):	0.8% for two-engine aircraft
En-route (one engine failure):	1.1% for two-engine aircraft

Night:
The hours between the end of evening civil twilight and the beginning of morning civil twilight or such other period between sunset and sunrise. Civil twilight ends in the evening when the centre of the sun's disc is 6 degrees below the horizon and begins in the morning when the centre of the sun's disc is 6 degrees below the horizon.

Non Precision Approach (NPA):
Instrument approach with lateral guidance only from the FAF to the runway environment. Descent limit is the MDA, and obstacle clearance (including go-

around) is guaranteed if the approach is discontinued no farther than the MAP. Approaches with lateral guidance from localiser, VOR, NDB or GPS are considered non-precision approaches. Although often a helpful tool for lateral and vertical navigation during approach, FMGS guidance is not a certified approach aid.

NOTAM:
A notice containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

- Class I distribution: Distribution by means of telecommunication
- Class II distribution: Distribution by means other than telecommunication

Obstacle Clearance Altitude/Height (OCA/H):
The lowest altitude (OCA), or alternatively the lowest height above the elevation of the relevant runway threshold or above the aerodrome elevation as applicable (OCH), used in establishing compliance with the appropriate obstacle clearance criteria.

Operational control:
The exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of the safety of the aircraft and the regularity and efficiency of the flight.

Performance Based Navigation (PBN):
Navigation technique that allows an aircraft to fly precisely along a predefined route using state-of-the-art onboard navigation systems (Global Positioning System - GPS). This concept is used en route, and can reduce aircraft separation, including the terminal area, and used to optimize arrival and departure procedures.

Pilot Flying (PF):
Is the designated pilot responsible for the operations of the controls for the aircraft for the flight 'Sector or Part thereof

Pilot-In-Command (PIC):
Pilot responsible of the operations and safety of an aircraft.

Pilot Monitoring (PM):
is the pilot designated for that sector or part there of to monitor the flight management and aircraft control actions of Pilot Flying (PF) and carry out support duties such as communication and check list-reading. In accordance with the multi-crew cooperation concept, when the required flight crew is more than one.

Precision approach:
Instrument approach with lateral and vertical guidance from the FAP to the runway touchdown zone, with system accuracy, integrity and obstacle clearance (including go-around) guaranteed until the descent limit (decision altitude or decision height) is reached. ILS, MLS and PAR are considered precision approaches.

Pressure-altitude:
An atmospheric pressure expressed in terms of altitude, which corresponds to that pressure in the Standard Atmosphere.

Required Navigation Performance (RNP):

A statement of the navigation performance accuracy necessary for operation within a defined airspace.

Runway Visual Range (RVR):
The range over which the pilot of an aircraft on the centreline of a runway can see the runway surface markings or the lights delineating the runway or identifying its centreline.

SIGMET: Significant Meteorological information:
Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations.

Slush:
Water-saturated snow which with a heel-and-toe slap-down motion against the ground will be displaced with a splatter; specific gravity: 0.5 up to 0.8

Snow (on the ground):
- Dry snow: Snow which can be blown if loose or, if compacted by hand, will fall apart upon release; specific gravity: up to but not including 0.35
- Wet snow: Snow which, if compacted by hand, will stick together and tend to or form a snowball; specific gravity: 0.35 up to but not including 0.5
- Compacted snow: Snow which has been compressed into a solid mass that resists further compression and will hold together or break up into chunks if picked up; specific gravity: 0.5 and over.

Technical log Book:
A document carried on an aircraft that contains information to meet ICAO requirements; a technical log contains at least two independent s: a journey record section and an aircraft maintenance record .

Transition altitude:
The altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes.

Transition level:
The lowest Flight Level (FL) available for use above the transition altitude.

Visibility:
The ability, as determined by atmospheric conditions and expressed in units of distance, to see and identify prominent unlighted objects by day and prominent lighted objects by night.

Visual approach:
An approach when either part or all of an instrument approach procedure is not completed and the approach is executed with visual reference to the terrain.

Visual Meteorological Conditions (VMC):
Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, equal to or better than specified minima.

Wet runway:
A runway is considered wet when the runway surface is covered with water, or equivalent, less than or equal to 3 mm or when there is sufficient moisture on the runway surface to cause it to appear reflective, but without significant areas of standing water.

Table 0-1: Conversion Units

	Metric to Imperial	Imperial to Metric
LENGTH	1 mm = 0.0394 in 1 m = 3.281 ft 1 m = 1.094 yd 1 km = 0.540 NM 1 km = 0.6215 statute mile	1 in = 25.4 mm 1 ft = 0.3048 m 1 yd = 0.914 m 1 NM = 1.852 km 1 statute mile = 1.609 km
SPEED	1 m/s = 3.281 ft/s = 1.944 kt 1 km/h = 0.54 kt	1 ft/s = 0.3048 m/s 1 kt = 1.852 km/h = 0.514 m/s
WEIGHT	1 g = 0.353 oz 1 kg = 2.2046 lb 1 t (tonne) = 2 204.6 lb	1 oz = 28.35 g 1 lb = 0.4536 kg 1 lb = 0.0004536 t
FORCE	1 N = 0.2248 lb 1 daN = 2.248 lb	1 lb = 4.448 N 1 lb = 0.4448 daN
PRESSURE	1 bar = 14.505 PSI 1 mbar = 1 hPa = 0.0145 PSI 1 mbar = 1 hPa = 0.02953 in Hg	1 PSI = 6892 Pa = 0.0689 bar 1 PSI = 68.92 hPa = 68.92 mbar 1 in Hg = 33.864 hPa = 33.864 mbar
VOLUME	1 l = 0.2642 US Gallon 1 m^3 = 264.2 US Gallons 1 l = 1.0567 US Quart	1 US Gallon = 3.785 l 1 US Gallon = 0.003785 m^3 1 US Quart = 0.94635 l
TEMPERATURE	°C = 5/9 (°F - 32) °C = 5/9 (°F + 40) - 40	°F = (°C x 1.8) + 32 °F = 9/5 (°C + 40) - 40

0.4 System of Amendment and Revision

0.4.1 Amendments to the Operations Manual

Revision to HKEA Operations Manual and Checklists will take into account operating requirement and human factors principle. Revision shall not conflict with manufacturer's produce AFM, without their approval.

The process of amending the HKEA OM are:

(1) Any person may propose an amendment to the operations manual. The Change Management Form on Coruson on-line system shall be completed by the Change Sponsor and shall obtain approval through Coruson.

(2) The manual authorizer will review the amendment request for validity and its effect on other parts of the operations manual. If the proposed change(s) affects other parts of the manual, then these changes are to be submitted at the same time.

(3) The manual authorizer and manual owner as shown in COMM Sec 5 Appendix 5-1 will then "Accept and Complete" the Change through Coruson.

(4) The Manager, Ops Library will receive an email generated by Coruson for Change Management Library, and subsequently included by normal revision. All revisions are managed through the Operations Manual and Checklist New Revision Flow in OM-A Chapter 2.2.3.1.

(5) Amendments to HKEA Operations Manuals do not require HKCAD approval prior to issuing unless it involves revisions to the MEL, Training related material in OM-D and OM-B SEP, or Chapter 1, 4, 7 and 8 in OM-A.

(6) Procedures to obtain authority approval for manual amendment shall refer to COMM Sec 2.7

0.4.2 Amendments to the Aircraft Manuals

- AFM, FCOM, FCTM and QRH revisions are to be reviewed by the Flight Technical Manager to determine their validity to the company operation.
- All MMEL revisions must be incorporated in HKEA A320 MEL and submitted to CAD within 90 days of the date of MMEL revision. OM-B MEL Revision Flow as shown in OM-A Chapter 2.2.2.2.
- Once the revisions have been reviewed by the Flight Technical Manager, they will be forwarded to the Manager, Ops Library who will update the aircraft manuals.
- Advice of an amendment will be given to Flight Crew via a Flight Crew Operational Notice (FCON), or Cabin Crew via Cabin Attendants Operational Notice (CAON).

0.4.3 Operations Manual Distribution Method and List

Flight Operations Manuals are made available online as the primary method of distribution. A limited distributed in hard copy format is also available if required. Hard copy manuals distribution list is shown in Table 0-2: *Hard Copy Distribution List*.

- Those staff holding "hard copy" publications must enter revisions upon receipt and complete the "Revision Record" showing the date of insertion.

- Each paper copy of the HKEA OM remains the property of HKEA. However, each holder of a paper copy of the HKEA OM is personally responsible for the security, condition and amendment status of their copy.

Table 0-2: Hard Copy Distribution List

	Flt Ops Lib	FOCC	ABO	MCC	Line MX	Simulator	Aircraft
Operations Manuals							
HKEA OM-A	✓	✓	✓			✓	✓
HKEA OM-B A320	✓	✓	✓				✓
HKEA OM-B SEP	✓		✓				✓
HKEA OM-B Performance	✓		✓			✓	✓
HKEA OM-C RAII	✓		✓				✓
HKEA OM-D	✓		✓				✓
HKEA CCOM	✓		✓				
HKEA CCSM	✓		✓				
Airbus Manuals							
A320 AFM	✓		✓	✓	✓	✓	✓
A320 QRH	✓		✓			✓	✓
A320 FCOM	✓		✓			✓	✓
A320 FCTM	✓		✓			✓	✓
A320 MEL	✓	✓	✓	✓	✓	✓	✓
Route Manuals							
NavTech Flight Information Supplement Booklet			✓				✓
NavTech Asia, Australasia & Pacific Supplement Booklet			✓				✓
NavTech Route Manuals			✓			✓	✓

0.5 Revision Record

Issue No	Effective Date	Amended By	Insertion Date
Issue 1.0	01Jun17	Operations Publications	01Jun17
Issue 1.1	11Oct17	Operations Publications	11Oct17
Issue 1.2	20Jan18	Operations Publications	20Jan18
Issue 1.3	15Feb18	Operations Publications	15Feb18

0.6 Amendment Summary

Reference	Change	Reason
Chapter 0 to Chapter 3	Various pages	Aligned with internal audit findings.
Chapter 5 to Chapter 6	Various pages	Aligned with internal audit findings.
Chapter 8 to Chapter 11	Various pages	Aligned with internal audit findings.

Chapter 1 – Organisation and Responsibilities

1.1 Organisational Structure

1.1.1 Hong Kong Express Airways Ltd Air Operators Certificate

Hong Kong Express Airways Limited (HKEA) has been issued Air Operators Certificate (AOC) Number 7 by the Hong Kong Civil Aviation Department (HKCAD), that allows the company to operate regular Public Transport Operations in A320/A321 series aircraft. All HKEA operations shall be conducted in accordance with the conditions and requirements of this AOC and the accompanying Air Operators Certificate Requirements Document.

The HKEA AOC contains specific approvals for;

- Low Visibility Operations (LVO)
- Reduced Vertical Separation Minimum (RVSM)
- EDTO
- PBN Operations - RNP 10, RNAV 5, RNP 4, Basic RNP 1, RNAV 1, RNAV 2, RNP APCH (LNAV/VNAV).
- ADS-B Out
- Approval of Navigation Equipment
- Permission to use MEL.

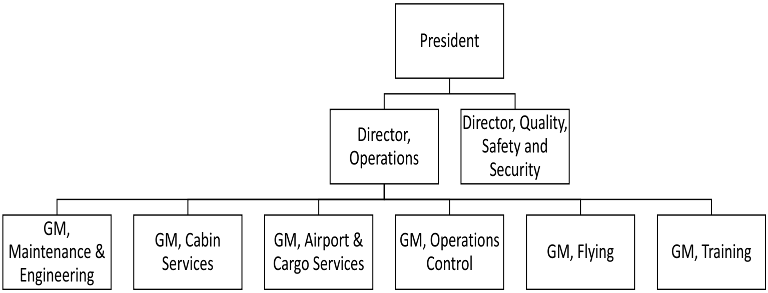
1.1.2 Area of Operation

HKEA is approved to conduct operations in the area shown in Figure 1-1: Area of Operation

Figure 1-1: Area of Operation

1.1.3 Company Structure

Figure 1-2: HKEA Company Structure



1.1.4 Flight Operations Department

The Flight Operations Department is responsible for the safe and efficient operation of Company aircraft by ensuring the conduct of operations complies with the Hong Kong Civil Aviation Department requirements and any additional rules and regulations applied by States within which the Company is authorized to conduct flight operations, and encompassing industry best practices as much as possible.

The Director, Operations has the overall responsibility of the department which is divided into three main sections: Operations Control, Flying and Training.

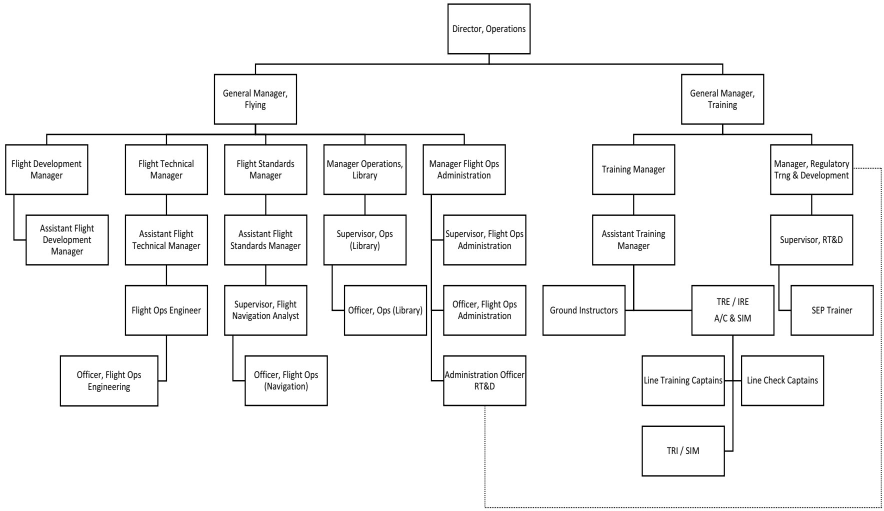
The Operations Control section is headed by the General Manager - Operation Control and is responsible for operational control, flight dispatch, crew administration, crew scheduling, roster, operational documentation, operational records control, ensures control of flight operations functions and other associated activities.

The Flying section is headed by the General Manager - Flying and is responsible for flight crew resources management, flight crew administration, line operations management and technical documentation. He ensures compliance with standards of the operator and requirements of the state and other applicable authority.

The Training section is headed by the General Manager - Training and is responsible for flight crew training management and administration. He ensures the fleets' flying training operations in a safe, cost effective and efficient manner and ensuring compliance with quality system and legal requirements.

The organization structure depicted in 1.1.3 (Fig 1-2) and 1.1.4 (Fig 1-3) define the superior and subordinate of each position.

Figure 1-3: Flight Operations Structure



1.2 Nominated Post Holders

• Director, Operations	Capt. Simon Wu
• General Manager, Maintenance and Engineering	Gary Zhan
• General Manager, Flying	Capt. Xavier Haveaux
• Director, Quality, Safety & Security	Roger Lee
• General Manager, Training	Capt. Rodrigo Marocco

1.2.1 Flight Operations Senior Management

Position	Incumbent	Deputy
Director, Operations	Capt. Simon Wu	GMF
General Manager, Flying	Capt. Xavier Haveaux	GMT (or FSM)
General Manager, Training	Capt. Rodrigo Marocco	TM / GMF
Flight Standards Manager	Capt. Gilberto Hartmann	AFSM / GMF
Flight Technical Manager	Capt. Anthony Ortolan	AFTM / GMF
Flight Development Manager	Capt. Lienhard Buechi	AFDM / GMF
General Manager, Operations Control	Gary Wong	MOC
Training Manager	Capt. Fabricio Fabre	TM / Nominated Senior Trainer
Director, Quality, Safety & Security	Roger Lee	QSS, Managers
Assistant Training Manager	TBA	TM / Nominated Senior Trainer
Assistant Flight Standards Manager	TBA	FSM
Assistant Flight Technical Manager	TBA	FTM
Assistant Flight Development Manager	Capt. Mauro Villani	FDM

1.3 Responsibilities and Duties of Operations Management Personnel

1.3.1 Director, Operations (DO)

Position Objectives

- To control, direct and develop policies for the company that ensure safe, effective and economical operation of company aircraft, including the provision of adequate and efficient ground operational support.
- To plan and implement measures that will enable the division to meet the requirements of future company development.

Maintain close liaison with	On matters concerning
Hong Kong Government Officer	Government policy and regulations, particularly those of the Civil Aviation Department, affecting operations of the airline

Duties & Responsibilities

- The authority to make decisions regarding risk tolerability with respect to the safety and/or security of operations.Responsibility for supervision of all flight operations activities.
- Advise the CEO on operational and safety matters.
- Manage all elements of operational activity to ensure compliance with the requirements of the Air Operator's Certificate.
- Maintain close liaison with the Hong Kong Government Officer on matters concerning Government policy and regulations, particularly those of the Civil Aviation Department, affecting operations of the airline
- Authorize the contents and revisions of the Operations Manuals.
- Formulate departmental policies for:
  - Safe utilization of aircraft;
  - Recruitment, training and utilization of aircrew;
  - Recruitment, training and development of non-flying operations personnel;
  - Organizational development and manpower planning.
  - Introduction of new aircraft and equipment.
  - Quality and Safety programmes to meet HKCAD and company requirements.
- Ensure that line operations, flight training procedures and flying standards are adequately defined in compliance with statutory orders, regulations, Air Operator's Certificate, and company policy.
- Ensure that dispatch standards, both in Hong Kong and at outports, are maintained to a satisfactory level to ensure compliance with the Air Operator's Certificate and the Air Navigation (Hong Kong) Order 1995.
- Ensure the department is represented on selected committees and at meetings where operational interest or commitment is involved.

- Maintain effective relations with appropriate governmental bodies, ICAO, IATA, other airlines, aircraft manufactures, and suppliers.
- Carry out duties, in accordance with the company Crisis Management Manual, in the event of a company aircraft accident or incident.
- Ensure that all MORs and ASRs are adequately investigated and that any action deemed necessary in the light of such investigation is taken.
- Supervise the preparation of expenditure and manpower budgets for the department and exercise control of expenditure.
- Ensure all departmental personnel matters are administered in accordance with company policy including:
  - The well being and morale of all operations personnel.
  - Control, counselling and discipline of immediate subordinates.
  - Making final decisions within the department on disciplinary matters.
  - Appointments, promotions, demotions, and dismissals.
- Visit other airlines, aircraft and engine manufacturers and aviation agencies to keep abreast of latest trends and developments within the industry.
- Establish a safety and security system that is fully accountable with defined cross functional responsibilities and risk assessment.
- Ensure that adequate safety oversight of contractors. .
- Conduct duties as specified in the Crisis Manual.
- Monitor that safety and security policy is achieving the objectives stated in the CEO mission statement.
- Ensure that maximum benefit accrues to the enhancement of safety from the data acquired through the Flight Data Monitoring Programme.
- Protect the confidentiality of reports acquired through confidential reports and the Flight Data Monitoring Programme to the extent permitted by law.
- Initiate and/or implement corrective and preventive actions to correct and prevent safety and quality non-conformities.

Qualification and Experience Requirements

- Appropriate flight operations management experience in a comparable organization.
- Comprehensive knowledge of regulatory requirements and familiar with aviation safety management system and quality systems.
- If not in possession of a valid flight crew license relevant to operations to be conducted under the AOC then his deputy (General Manager - Flying) must possess a valid flight crew license relevant to operations to be conducted under the AOC.
- Qualification and experience acceptable to the HKCAD.

1.3.2 General Manager, Flying (GMF)

Position Objectives

- To ensure safe, efficient and economical operation of company aircraft and effective use of human resources, through the development and implementation of operations and pilot training policy.

Maintain close liaison with	On matters concerning
Cabin Services Department	Cabin crew and emergency response
General Manager, Operations Control	Operational control, planning and support
General Manager, Maintenance & Engineering	Day to day Engineering matters
Director, Quality, Safety & Security	All aspects of safety, quality and security

Duties & Responsibilities

- The authority to make decisions regarding risk tolerability with respect to the safety and/or security of operations.
- Establish flight operations objectives and policy and ensure that all pilots are aware of company objectives, flying regulations and operational requirements through the OM and the issuance of Flight Crew Operational Notices.
- Maintain close liaison with Cabin Services Department on matters concerning Cabin crew and emergency response
- Maintain close liaison with General Manager, Operations Control on matters concerning Operational control, planning and support
- Maintain close liaison with General Manager, Maintenance & Engineering on matters concerning day to day Engineering matters
- Maintain close liaison with Director, Quality, Safety and Security on matters concerning all aspects of safety, quality and security
- Issue instructions to ensure that the Operations Manual reflects the current regulatory and company policies and requirements.
- Oversee and to ensure a high standard of line operations.
- Recommend to DO of co-pilots suitable for promotion to next substantive rank taking into consideration their professional competence on line, and personal qualities.
- Ensure that all pilots are interviewed on a regular basis, and advised of their progress and / or shortcomings.
- Ensure that Flight crew standard is maintained at a high level.
- Ensure that any pilot who requests or needs guidance or counsel is interviewed and given necessary assistance and advice.
- Make decisions regarding FTL and processing CDRs.
- Assist the General Manager, Operations Control (GMOC) in preparing departmental budgets.
- Carry out duties, as defined, in the event of an aircraft accident or incident.

- Review investigation reports from GMQSS of all MOR / ASRs / CDRs and recommend to DO any action deemed necessary to prevent recurrence.
- Ensure that the method of disseminating operational and company information to aircrew is effective and timely and that such information is accurate and suitably presented.
- Chair regular Flight Operations Management Meetings, at which Flight Operations policy, Voyage Report responses, Crew Confidential Reports, Air Safety Reports and Mandatory Occurrence Reports are reviewed.
- Make recommendations to the DO for the appointment of new Fleet office staff, after consultation with the managers.
- Prepare and issue Flight Crew Operational Notices and Cabin Attendant Operational Notices as required.
- Liaise with the HKCAD on operational policy matters.
- Administer the Approved Flight Time Limitations Scheme.
- Attend Safety Action Group meetings.
- Carry out duties as Duty Operations Manager.
- Maintain own competence in the role of line Captain;
- Deputize for the DO as required.
- Authorize the contents and revisions of the Operations Manuals.
- Ensure the department is represented on selected committees and at meetings where operational interest or commitment is involved.
- Initiate and/or implement corrective and preventive actions to correct and prevent safety and quality non-conformities

Qualification and Experience Requirements

- At least five years relevant work experience, including two years in the aeronautical industry
- Appropriate management experience in a comparable organization. The number of years of management experience required will be dependent on the combined management experience levels of other senior flight operations management team members.
- Comprehensive knowledge of regulatory requirements and familiar with aviation safety management system and quality systems.
- Must possess valid flight crew license relevant to operations to be conducted under the AOC if the Director, Operations does not possess a valid flight crew license.
- Qualification and experience acceptable to the HKCAD.

1.3.3 General Manager, Training (GMT)

Position Objectives

- To ensure all training and operating standards of Flight Operations flight crew, and the development of, and adherence to Standard Operating Procedures (SOPs).
- To be responsible for the selection and training of new pilots, and the administrative requirements of FOP.

Role and Responsibilities:

- Is the nominated AOC post holder for Training
- Accountable for ensuring that all Flight Crew Initial, recurrent and re-qualification and/or periodic checks are carried out in accordance with HKCAD Regulations, Orders and Hong Kong Express requirements
- Accountable for maintaining the currency of the Training Manual (OM-D) such that it reflects the latest regulatory and industry standards syllabi and training personnel
- Will be the focal point of communications regarding all Flight Crew Training related matters with HKCAD, Regulatory authorities and Original Equipment Manufacturers
- Have the authority to make decisions regarding safety and security risk tolerability with respect to Flight Crew Training, inclusive of training facilities
- Implement systems, procedures, and documentation for all Flight Crew training and review their effectiveness
- Responsible for ensuring that training records and Certificates of Test are correctly signed and maintained
- Arrange for the use and approval of flight simulators and other training Facilities as required by the HKCAD
- Accountable and responsible for identifying and assessing both future and current training needs for Flight Crew
- Accountable and responsible for providing ongoing development of Evidence Based Training & Competency Based Training for Flight Crew
- Counsel pilots as required ensuring that they are aware of any shortcomings in flying standards or SOPs, and recommend corrective action
- Responsible for the evaluation of the effectiveness of Flight Crew Training programs
- Prepare agenda, chair and produce minutes of FOP Training Meetings
- Responsible to develop and deliver Flight Crew Operations Training budget. Review training rosters to ensure the most effective training within approved budget limits
- Monitor technical standards of flight simulators and other training facilities
- Maintain all the currencies and qualifications required for the role of General Manager Training
- Maintain close liaison with Cabin Service Department of all training activities

- Maintain close liaison with General Manager Operations Control on matters concerning planning, rostering and scheduling of all training activities
- Maintain close liaison with Manager Regulatory Training and Development on matters concerning CRM development and emergency procedures requirement
- Shall ensure that RT&D training (initial and recurrent) deliver to high standard and service
- Request CAD Inspector to check the competency of a SEP Instructor/ Examiner upon the completion of the in-housing SEP Instructor/Examiner Training Programme
- Maintain close liaison with Quality, Safety and Security on matters concerning Flight Safety and Quality matters related to Training
- Maintain close liaison with Flight Standard Manager on matters concerning development, publicize and monitor adherence to company SOPs
- Overall lead on instructor planning, recruitment, and selection of candidates
- Supervision of efficient instructor planning and scheduling to insure that rosters are planned and executed as safely and efficiently as possible
- Chair Upgrade Committee and make recommendations to the Director Operations for the appointment of new training staff taking into consideration their professional competence on line, and personal qualities
- Chairs Promotion Committee
- Lead FOP Administration team to ensure all administration issues related to instructors and training are handled according to HKCAD regulations and requirements
- Manage instructor annual leave balance and approve all types of instructor leave
- Together with Manager, Crews Operations, administer an efficient and fair roster swap process for all instructors
- Attend Safety Action Group meetings. Member of Flight Operations Management Meetings, at which Flight Operations policy, Voyage Report responses, Crew Confidential Reports, Air Safety Reports and Mandatory Occurrence Reports are reviewed relevant to Training
- Deputize for the DO as required
- May be required to fly line flights as a Captain as required
- Work with QSS team to ensure Just Culture process is fairly and efficiently employed as the Company discipline process as it relates to cockpit crews

Qualifications:

- At least 5 years relevant work experience, including 2 years in the aeronautical industry
- Appropriate management and flying training experience in the Company or a comparable organization. The number of years of management experience required will be dependent on the combined management experience levels of other senior flight operations management team members
- Comprehensive knowledge of regulatory requirements and familiar with aviation safety management system and quality systems
- Airline Transport Pilots License and type rated on at least one of the aircraft types operated by Hong Express Airways
- HKCAD approved Current Type Rating / Instrument Rating Examiner on a type operated under the AOC Qualification and experience acceptable to the HKCAD

1.3.4 General Manager, Operations Control (GMOC)

Position Objectives

- Overall management and supervision of flight crew scheduling.
- To control, direct and develop policies for the Operations Department which ensure safe, effective and economical operation of Company aircraft, including the provision of adequate and efficient ground operational support.
- To plan and implement measures that will enable the division to meet the requirements of future Company development.
- To publish and maintain the Operation Services Manual under the approval of Director Operations.
- To conduct risk assessments during the design and planning phase and prior to commencement of all new significant business activities.
- To review an existing risk management plan as result of recommendations arising from the internal audit, following amendments of any legislation and following accident or serious incidents.
- To attend weekly management meetings / SRB meetings.
- Attend Hong Kong Observatory Liaison Group meeting.
- Acts as IOSA coordinator for Operations Control as required.
- Participates in projects at corporate level e.g. introduction of new aircraft type.
- Such other duties as may be assigned by Director Operations.
- To liaise with regulatory authorities, original equipment manufacturers and other external entities.

Maintain close liaison with	On matters concerning
HK Government Officers	Government policy and regulations, particularly those of the Civil Aviation Department, affecting operations of the Airline.
Airport Authority	Airfield related matters and/or procedures
IOSA	Renewal audit
General Manager, Flying	Flight Operations related issues and Flight Crew related issues
General Manager, Airport & Cargo Services	Pax handling related issues
Director, Quality, Safety and Security	Internal audits, safety and security issues
Handling Agencies	Operational procedures of company flights
Network Planning	Flight scheduling and applications

Duties & Responsibilities

- Advise Director Operations with regard to operational matters.
- Manage the ground operations activity to ensure compliance with the requirements of the Air Operator's Certificate (AOC).

- Formulate divisional policies for the safe utilization of aircraft, recruitment, training and development of ground operations personnel, organizational development and manpower planning, out-port aircraft traffic handling standards, and the administration of the Flight Time Limitation Scheme.
- Ensure that flight following standards, functions, and responsibilities, both in Hong Kong and at out-ports, are maintained to a satisfactory level to ensure compliance with the AOC and the AN(HK)O 1995.
- Maintain effective relations with appropriate governmental bodies, ICAO, IATA, other airlines, aircraft manufacturers and suppliers.
- Perform assigned duties, in accordance with the company Crisis Management Manual, in the event of a company aircraft accident or incident.
- Maintain close liaison with HK Government Officers on matters concerning Government policy and regulations, particularly those of the Civil Aviation Department, affecting operations of the Airline.
- Maintain close liaison with Airport Authority on matters concerning Airfield related matters and/or procedures
- Maintain close liaison with IOSA on matters concerning Renewal Audit
- Maintain close liaison with General Manager - Flying on matters concerning Flight Operations related issues and Flight Crew related issues.
- Maintain close liaison with GM, Airport and Cargo Services on matters concerning Passenger handling related issues
- Maintain close liaison with Director, Quality, Safety and Security on matters concerning Internal audits, safety and security issues
- Maintain close liaison with Handling agencies on matters concerning Operational procedures of company flights
- Maintain close liaison with Network Planning on matters concerning Flight scheduling and applications
- Supervise the preparation of expenditure and manpower budget for the department and exercise control of expenditure.
- Ensure all department personnel matters are administered as per Company policy to include the well-being and morale of all ground operations personnel, the oversight, counsel and discipline of immediate subordinates, determination of final decision within the department on disciplinary matters, and appointment, promotions, demotions and dismissals.
- Ensure the requirements of aviation security are complied with in all aspects of the company's operations.
- Conduct new destination station inspection before launch and station audit as required.
- Monitor On-Time-Performance with OTP committee and make suggestions to achieve Company objectives.
- Authorize the contents and revisions of the Operations Manuals.
- Review and amend the Operations Manual in a timely basis in order to fulfil the requirement of authorities and IATA etc.

Qualification and Experience Requirements

- Form 7 and preferably with FAA Aircraft Dispatcher License or equivalent.
- Broad knowledge in aircraft handling and operations and regulatory requirements and familiar with aviation safety management system and quality system.
- 15 years airline operations experience with 10 years at senior position in Airline Operations Department
- Appropriate flight operations control experience in a comparable organization.

1.3.5 Flight Standards Manager (FSM)

Position Objectives

- To be responsible for all aircraft and crew related aspects of company flying operations.

When absent deputized by

- General Manager, Flying
- Assistant Flight Standards Manager

Maintain close liaison with	On matters concerning
General Manager, Operations Control	Operational Control and crew matters
Director, Quality, Safety and Security	Flight Safety matters

Duties & Responsibilities

- Ensure that the Company's fleet is operated in a safe, efficient and cost-effective manner, in accordance with company policy and within agreed budget limits.
- Act as first 'point-of-contact' for flight crew members on all operational and technical matters.
- Assist GMF with pilot recruitment and induction procedures.
- Co-ordinate amendments to Aircraft Operating Manual and Route Manual, and oversees publication of company port pages.
- Maintain close liaison with General Manager Operations Control on matters concerning Operational Control and crew matters
- Maintain close liaison with Director, Quality, Safety and Security on matters concerning Flight Safety matters
- Oversees work in flight operations engineering and navigation domains.
- Conduct risk assessment for operations to new destinations.
- Maintain own competence as a line Captains on line operations.
- Liaise with General Manager Operations Control on budget and crew resources.
- Carry out Duty Operations Manager duties as required.
- Issue Flight Crew Notices as required and review them on a monthly basis.
- Develop, publicize and monitor adherence to company SOPs.
- Be familiar with AN(HK)O and AOCRD as applicable to HKEA operations.
- Attend Flight Operations Management and Safety Action Group meetings. Refer to SMSM 7.1 Departmental Safety Representative for the related responsibility.
- Liaise with HKCAD, Aircraft Manufacturer(s) and Maintenance provider as required.
- Assess Voyage Reports, CDRs and ASRs, responding to those that submitted the report, as required.
- Review / monitor changes to FMGS to ensure the database is current, accurate and complete.

- Act as the Quality Representative for Flight Operations Department.

Qualification and Experience Requirements

- At least five years relevant work experience, including two years in an airline operations environment.
- Appropriate management and flying experience in a comparable organization. The number of years of management experience required will be dependent on the combined management experience levels of other senior flight operations management team members.
- Comprehensive knowledge of regulatory requirements and familiar with aviation safety management system and quality systems.
- Must possess valid flight crew license relevant to operations to be conducted under the AOC.
- Qualification and experience acceptable to the HKCAD.

1.3.6 Assistant Flight Standards Manager (AFSM)

Position Objectives

- To assist the Flight Standards Manager

When absent deputized by

- Flight Standards Manager

Duties & Responsibilities

- As assigned within the “Areas of responsibility” of the Flight Standards Manager
- Deputize the Flight Standards Manager as required.
- Acquire knowledge of regulatory requirements and familiar with aviation safety management system and quality system.

Qualification and Experience Requirements

- At least two years in an airline operations environment, one year on type and company network
- Must possess valid flight crew license relevant to operations to be conducted under the AOC.

1.3.7 Training Manager (TM)

Position Objectives

- To be responsible for all training and operating standards of Flight Operations flight crew, and the development of, and adherence to Standard Operating Procedures (SOPs).

Directly responsible for

- TRE/IRE Simulator and Aircraft
- TRI Simulator
- Line Check Captains (LCC)
- Line Training Captains (LTCs)
- Ground Training Instructors
- Simulator Instructors

When absent deputized by

- General Manager, Flying
- Assistant Training Manager

Maintain close liaison with	On matters concerning
General Manager, Operations Control	Planning, scheduling and rostering of all training activities
Director, Quality, Safety and Security	Flight Safety and Quality matters
Manager, Regulatory, Training & Development	Crew co-ordination Development (RT&D) emergency procedures training requirements

Duties & Responsibilities

- Ensure that initial, recurrent, command and TC training and periodic checks are carried out to HKCAD and HKEA requirements.
- Ensure that training records and Certificates of Test are correctly signed and maintained.
- Implement systems, procedures, and documentation for all pilot training and review their effectiveness.
- Maintain close liaison with General Manager Operations Control (GMOC) on matters concerning Planning, scheduling and rostering of all training activities
- Maintain close liaison with Manager Regulatory Training & Development on matters concerning Crew co-ordination Development (RT&D) emergency procedures training requirements
- Maintain close liaison with Director, Quality, Safety and Security on matters concerning Flight Safety and Quality matters
- Organize refresher training as required.
- Develop, publicise and monitor adherence to company SOPs.
- Maintain the Training Manual such that it reflects the latest company training instructions, syllabi and lists of training personnel.

- Arrange for the use and approval of flight simulators and other training devices as required and within approved budget limits.
- Make recommendations to the GMF for the appointment of new training staff.
- Ensure that training staff are adequately trained and qualified for their assigned task and monitor their subsequent performance in the role.
- Counsel pilots as required ensuring that they are aware of any shortcomings in flying standards or SOPs, and recommend corrective action.
- Prepare agenda, chair and produce minutes of Training meetings.
- Assist the GMF in preparing training budgets.
- Review training rosters to ensure the most effective training within approved budget limits.
- Prepare Training Manual amendments.
- Carry out duties as Duty Operations Manager as required.
- Liaise with the HKCAD on pilot training matters.
- Liaise with outside agencies and organisations on the development of training methods and equipment and make a case for capital expenditure for proposed improvements.
- Monitor technical standards of flight simulators.
- Maintain own competence in the role of Training Captain and Authorized Examiner.
- Attend Flight Operations Management and Safety Action Group Meetings.

Qualification and Experience Requirements

- At least five years relevant work experience, including two years in an airline operations environment.
- Appropriate management and flying training experience in the company or a comparable organization. The number of years of management experience required will be dependent on the combined management experience levels of other senior flight operations management team members.
- Comprehensive knowledge of regulatory requirements and familiar with aviation safety management system and quality systems.
- Must possess valid flight crew license relevant to operations to be conducted under the AOC, preferably be a Type Rating/Instrument Rating Examiner on a type operated under the AOC.
- Qualification and experience acceptable to the HKCAD.

1.3.8 Assistant Training Manager (ATM)

Position Objectives

- To assist the Training Manager

When absent deputized by

- Training Manager
- TM nominated training department member

Duties & Responsibilities

- As detailed within the “Areas of responsibility” of the Training Manager
- Deputise the TM as required.
- Acquire knowledge of regulatory requirements and familiar with aviation safety management system and quality system.

Qualification and Experience Requirements

- At least two years in an airline operations environment.
- Must possess valid flight crew license relevant to operations to be conducted under the AOC, should normally hold a Training Captain position or above on a type operated under the AOC.

1.3.9 Flight Technical Manager (FTM)

When absent deputized by:

- General Manager - Flying
- Assistant Flight Technical Manager

Duties & Responsibilities

- Act as first 'point-of-contact' for flight crew members on technical matters;
- Maintain own competence as a line captain / instructor on line operations / in simulator;
- Liaise with General Manager Maintenance and Engineering;
- Manage Flight Operations participation in aircraft modification projects with pilot human-machine interface impact;
- Carry out Duty Operations Manager duties as required;
- Issue Flight Crew Notices as required;
- Be familiar with AN (HK) O and AOC regulations as applicable to HKEA operations;
- Attend Flight Operations Management and Air-Ground meetings;
- Liaise with HKCAD, Aircraft Manufacturer(s), and Maintenance provider as required;
- Review changes to MMEL, Flight Operational Manuals and AFM to ensure HKEA's MEL is amended as required.

Qualification And Experience Requirements

- At least five years relevant work experience, including two years in an airline operations environment;
- Appropriate management and flying experience in a comparable organization. The number of years of management experience required will be dependent on the combined management experience levels of other senior flight operations management team members;
- Comprehensive knowledge of regulatory requirements and familiar with aviation safety management system and quality systems;
- Must possess valid flight crew license relevant to operations to be conducted under the AOC;
- Qualification and experience acceptable to the HKCAD.

1.3.10 Assistant Flight Technical Manager (AFTM)

Position Objectives

- To assist the Flight Technical Manager

When absent deputized by:

- Flight Technical Manager

Duties & Responsibilities

- As assigned within the “Areas of responsibility” of the Flight Technical Manager;
- Deputize the Flight Technical Manager as required;
- Acquire knowledge of regulatory requirements and familiar with aviation safety management system and quality system.

Qualification and Experience Requirements

- At least two years in an airline operations environment, one year on type;
- Must possess valid flight crew license relevant to operations to be conducted under the AOC.

1.3.11 Flight Development Manager (FDM)

When absent deputized by:

- General Manager, Flying
- Assistant Flight Technical Manager

Duties & Responsibilities

- Oversees and participates in aircraft evaluation during functional check flights for C of A issue/renewal, return to service and aircraft acceptance/ delivery;
- Oversees and participates in functional evaluation of synthetic training devices;
- Maintains the functional check and evaluation documentation in the operations manual and schedules;
- Leads pilots and observers qualified to conduct functional check flights and evaluations; and participates in their selection and training as required;
- Represents Flight Operations in projects for the selection, specification, modification and introduction of new aircraft, systems and/or capabilities;
- Liaises with HKCAD, Aircraft Manufacturer(s), Maintenance provider(s) and Maintenance & Engineering as required;
- Attends Flight Operations Management, Safety Action Group, Air-Ground meetings and industry functions as required;
- Maintains own competence as a Captain / Instructor / Examiner during line operations / in simulator as required;
- Carries out Duty Operations Manager duties as required;
- Issues Flight Crew Notices as required;
- Maintains knowledge of AN (HK) O and AOC regulations as applicable to HKEA operations;

Qualification and Experience Requirements

- At least five years relevant work experience, including two years in an airline operations environment;
- Appropriate management and flying experience in a comparable organization. The number of years of management experience required will be dependent on the combined management experience levels of other senior flight operations management team members;
- Comprehensive knowledge of regulatory requirements and familiar with aviation safety management system and quality systems;
- Must possess valid flight crew license and Airworthiness Flight Test Approval relevant to operations to be conducted under the AOC;
- Qualification and experience acceptable to the HKCAD.

1.3.12 Assistant Flight Development Manager (AFDM)

Position Objectives

- To assist the Flight Development Manager

When absent deputized by:

- Flight Development Manager

Duties & Responsibilities

- As assigned within the “Areas of responsibility” of the Flight Development Manager;
- Deputize the Flight Development Manager as required;
- Acquire knowledge of regulatory requirements and familiar with aviation safety management system and quality system.

Qualification and Experience Requirements

- At least two years in an airline operations environment, one year on type and company network
- Must possess valid flight crew license relevant to operations to be conducted under the AOC, should normally hold a Captain position or above and Airworthiness Flight Test Approval on the fleet type operated under the AOC.

1.3.13 Manager, Regulatory Training & Development (MRT&D)

Position Objectives

- Responsible for the training in the area of Safety & Emergency Procedures, Dangerous Goods and Crew Resources Management for Flight Crew and Cabin Crew, in accordance to the regulatory requirement, specified in the AN(O) 1995, AOCRD (CAD 360) and IOSA. Develop and maintain internal procedures, protocol in accordance to industries' best practice.

When absent deputized by:

- General Manager, Flying

Maintain close liaison with	On matters concerning
Flight Technical Manager	To identify and update training needs
Flight Standard Manager	To identify and update training needs
Training Manager	To identify and update training needs
Director, Quality, Safety and Security	To identify and update training needs
General Manager, Cabin Crew	To identify and update training needs

Duties & Responsibilities

- Establish regulatory training objectives and policies
- Ensure regulatory training are in accordance with the specified standards within the budget
- Make the appropriate decisions in regards to regulatory training
- Make recommendations to DO, GMF for regulatory training matters
- Manage and Develop the SEP, CRM, DGR, training for Flight Crew and Cabin Crew
- Carry out In-flight Audit Programme for Flight Crew and Cabin Crew to ascertain the level of competence
- Audit external training facilities to address current and projected training needs
- Maintain close liaison with Flight Technical Manager to identify and update training needs
- Maintain close liaison with Flight Standards Manager to identify and update training needs
- Maintain close liaison with Training Manager to identify and update training needs
- Maintain close liaison with GM Cabin Crew to identify and update training needs
- Maintain close liaison with Director, Quality, Safety and Security to identify and update training needs
- Manage the development of the curriculum and syllabus for SEP, DG, CRM, Security Training
- Review training curriculum to ensure adherence to regulatory requirements

- Oversees the development of Train the Trainer course and workshops for training personnel and facilitators
- Appraise AM RT&D, Administrative Officer, SEP instructors and CRM facilitators, Ground Instructors, and out sourced training courses
- Manage the development of training for part-time SEP instructors and CRM facilitators
- Plan and maintain adequate manpower to conduct training and ensure all training staff remains qualified and current
- Supervise training program conducted by training staff
- Interview trainee whom has failed the test and recommend appropriate course of action
- Validate training record database provided by RT&D staff
- Provide projection of crew training man-days requirement to Flight Operations and In-flight Services administration team to facilitate roster planning
- Authorize and review the regular update of the Safety Emergency Procedure Manual (Operation / Training) to reflect all procedural changes, regulatory requirements and technical accuracy
- Initiate and lead the meeting on training material and exams review
- Recommends amendments in the area of Regulatory Training to General Manager Flying
- Supervise the drafting of Crew Operations Notice related to safety emergency procedure
- Review critique form / survey to identify training needs
- Review Industry's (IOSA / IATA / CAD) documents to identify training needs
- Review Voyage report / Safety Report to identify training needs and recommend corrective actions
- Assist GMF and DQSS in the Investigation of In-flight Safety violations
- Incorporate recommended remedial actions from the investigation into manual
- Implement recommended remedial actions from the investigation into training
- Prepare yearly budget for the
- Coordinator for the Emergency Response Management
- RT&D representative on the Safety Action Group Committee
- Direct safety equipment and procedure introduction meeting
- Manage the provision of training support by RT&D team to Flight Dispatch, Ground Handling, Engineering and Cargo as and when directed by DO and/or GMF
- Validates SEP related queries from crew, where necessary, raise amendment to bridge any gaps identified
- Provide expert opinion in the area of safety video and safety instruction card development
- Perform aircraft pre-entry into service emergency equipment check

- Draft correspondences to CAD relative to safety training matters as and when directed by DFO and/or GMF
- Maintains currency as a HK CAD approved instructor by conducting course on the absence of an instructor

Qualification and Experience Requirements

- At least 5 years previous airline experience (AviationTraining, Flight Crew or Cabin Crew experience preferable)
- Approved Examiner/Instructor by the HK CAD
- Holder of recognized First Aid certificate, DGR certificate, CRM Certificate, Life Saving Certificate is preferable
- Fluent in English: Cantonese and Mandarin is preferable

1.3.14 Supervisor, Flight Navigation (SFN)

Position Objectives

- Execute all pre and post-operational tasks in the navigation domain.

When absent deputized by:

- Officer, Flight Operations (Navigation)
- Flight Operations Engineer
- FOCC Duty Manager

Maintain close liaison with	On matters concerning
Flight Operations Engineer	Routes and operating area
Network Planning	Routes and operating area
General Manager, Operations Control	Routes and operating area

Duties & Responsibilities

- To be responsible to monitor and obtain all required over flight clearances, whether seasonal or ad-hoc that will allow HKEA flights to operate on the optimum routings when required.
- Supervise and coordinate pre-operational route study upon request by airline planning and crosscheck documentation for submission to HKCAD and ATLA application etc.
- To design and maintain route database for all HKEA destinations and diversion routes in the flight planning system.
- Closely liaise with flight service providers to maintain a program of quality assurance for all data entered into FMGC with those used in flight planning, are accurate.
- Supervise AIP revision and liaise with flight operations librarian to closely monitor changes of Navtech route manual, NOTAM and adjust flight planning system accordingly.
- Maintain close liaison with Supervisor, Flight Operations Engineer on matters concerning Routes and operating area
- Maintain close liaison with Airline Planning on matters concerning Routes and operating area
- Maintain close liaison with GMOC on matters concerning Routes and operating area
- Analyse fuel burn data from flight plan system and QAR to optimize route cost for HKEA operations.
- Conduct monthly review, investigate crew feedback, voyage report and take follow-up action.
- Manage the contents of navigations charts and booklets; prepare tailored charts in cooperation with service provider, if required.
- Issue and maintain Flight Crew Operational Notices (FCON) as required and monitor FCON validity.
- To be responsible to maintain the required company data in HKEA OM-C, Route and Aerodrome Instructions and Information.

- Bill reconciliation between company and service providers; cross check usage of services (Over flight, Flight Planning) under the management of FOCC flight movement log.
- Download, analyse FMGS navigation database and produce upload disks for each database cycle in coordination with Engineering Planning .
- Additional duties & responsibilities may be assigned by the Flight Standards Manager, GMF or DO as required.

Qualification and Experience Requirements

- At least 3 years previous airline experience.

1.3.15 Supervisor, Flight Operations Engineer (SFOE)

Position Objectives

- Execute tasks in aircraft performance and equipment/capability domains

When absent deputized by:

- Flight Technical Manager
- Supervisor, Flight Navigation

Maintain close liaison with	On matters concerning
Supervisor, Flight Navigation	Routes and operating area
Network Planning	Routes and operating area
Maintenance and Engineering	Aircraft equipment and capabilities

Duties & Responsibilities

- Ensure that all aircraft related performance is in compliance with rules and regulations.
- Determine the suitability of aerodromes in respect to their physical characteristics, ground movement areas & obstacle clearances. This should include collection of relevant data for airport categorization.
- Analyse flight routes to ensure compliance with rules and regulations.
- Analyse aircraft performance and in-flight operation to improve economy as well as for specific investigations.
- Maintain close liaison with Supervisor, Flight Navigation on matters concerning Routes and operating area
- Maintain close liaison with Airline Planning on matters concerning Routes and operating area
- Maintain close liaison with Engineering on matters concerning Aircraft equipment and capabilities
- Develop forms for operational and technical data such as landing charts, takeoff charts, drift - down procedure charts, route briefing.
- Develop educational material related to aircraft performance.
- Develop of Flight Operations Engineering related technologies (methods & procedures).
- Revise MEL as per MMEL and HKAR requirements
- Analyse and develop Engine-Out takeoff and Go-around procedures
- Responsible for airworthiness test flight as test flight engineer
- Additional duties & responsibilities may be assigned by the FTM, GMF or DO as required.

Qualification and Experience Requirements

- At least 3 years previous airline experience.

1.3.16 Manager, Flight Operations Administration (MFOA)

Position Objectives

- The MFOA is responsible for monitoring the administration of crew records, liaising with training providers and flight operations administration.

When absent deputized by:

- General Manager, Flying

Maintain close liaison with	On matters concerning
Training Manager	Flight Operations and flight crew administration
General Manager, Operations Control	Planning, scheduling and rostering of all training activities

Duties & Responsibilities

- Supervise the data entry in the computerized crew administration database.
- Propose SIM training schedule / roster to TM, and arrange / manage bookings for simulator with the simulator provider.
- Provide reports regarding upcoming regulatory training to the TM, rostering and applicable parties in a timely manner.
- Communicate with CAD in regards to flight crew's licensing issue.
- Maintain close liaison with Training Manager (TM) on matters concerning Flight Operation and crew administration
- Maintain close liaison with General Manager, Operations Control (GMOC) on matters concerning Planning, scheduling and rostering of all training activities.
- Oversee the induction processes of new crew's schedules, training requirements in conjunction with TM and GMOC.
- Make recommendations to the TM on improvements in procedures, and Integration with external suppliers.
- Involve in flight crew recruitment process.

Qualification and Experience Requirements

- At least two 2 years experiences in the aviation crew regulatory environment.
- Proficient with Microsoft Office Excel, Word, PowerPoint and an understanding of database applications.
- Good organizational skills.

1.3.17 Supervisor, Flight Operations Administration (SFOA)

Position Objectives

- The SFOA is responsible for the administration of crew records, liaising with training providers and flight operations administration.

Duties & Responsibilities

- Assist with daily office administration and clerical tasks
- Update and maintain flight crew records, flying hours record and flight crew hotel allowance record
- Maintain close liaison with Training Manager (TM) on matters concerning Flight Operation and crew administration
- Maintain close liaison with General Manager Operational Control (GMOC) on matters concerning Planning, scheduling and rostering of all training activities.
- Communicating with flight crew in regards to uniforms and medical exam arrangement
- To handle ad hoc assignments and perform administration duties as assigned

Qualification and Experience Requirements

- 1 year experience in administration; Diploma and above
- Good command of spoken and written English, Chinese and Putonghua
- Proficient with Microsoft Office Excel, Word, PowerPoint and understanding of database applications.
- Good organizational skills, conscientious, mature attitude and able to multi-task

1.3.18 Manager, Operations Library (MOL)

Main purpose of the job

- MOP will manage all works carried out by the Flight Publication Team and will ensure company procedures and publications are followed as per the Corporate Manual and Operations Manual. Operational duties will involve regular inspection of each fleet on-board Aircraft Library, Operations Master Library, Simulator Library and ABO Library. This position is also responsible to ensure that high standard of service delivery is maintained.

When absent deputized by:

- General Manager, Flying

Maintain close liaison with	On matters concerning
FOP	Operations / Training Manual related matters
Manager Crew Operations	Flight Crew hours reporting
Maintenance & Engineering	Aircraft delivery / maintenance schedule
Other HKEA Departments	Operations / Company manual related matters
T&I	Monthly Flight Crew Productivity Hours

Duties & Responsibilities

- Oversees works in Flight Publication Team, manage and control the operational documentation of HKEA.
- Ensure an efficient and expeditious amendment and distribution service of the Operations Manuals.
- Ensure that Company Operations Manuals are in compliance with rules and regulations.
- Manage electronic documentation system.
- Perform regular inspection on all operations manuals, legislative and aeronautical information in the Operations and aircraft Library to ensure their effectiveness.
- Liaise with Maintenance & Engineering on the operations manuals aspects.
- Maintain close liaison with concerned department on matters relating to Corporate manuals and Operations manuals amendment.
- Work closely with Flight Technical Manager on matters concerning OEM Operations manuals amendment and publication issues.
- Conduct periodic inspection on operations and aircraft libraries to ensure all documentations are valid.
- Plan for, and maintain, adequate staff and equipment necessary to perform Ops Library department functions.
- Monitor invoices on landing/navigational/fuel charges.
- Validate crew flight/duty hours for monthly Flight Crew Productivity Hours

- Assist in other duties as assigned

Qualification and Experience Requirements

- Minimum 5 years library / document management experience.
- Minimum 10 years in managerial level.
- Possess high level of document control and management skills.
- Proficient in Microsoft Word, Excel and the Adobe or other editorial software.
- Good problem-solving, analytical and organizational skills.
- Able to work independently and under pressure.

1.3.19 Supervisor, Operations (Library) (SO-Library)

Position Objectives

- Produce, update& distribute the operations manuals, maintain crew flying/duty records and house-keeping of post-flight data.

Duties & Responsibilities

- Ensure proper maintenance of all operations manuals, legislative and aeronautical information in the Operations and aircraft Library.
- Liaise with Engineering Handling Agent on the operations manuals aspects.
- Maintain close liaison with Officer, Operations on matters concerning Library services activities
- Maintain close liaison with Flight Standards Manager on matters concerning Operations manuals amendment and publication issues
- Conduct periodic audits on operations and aircraft libraries to ensure all documentations are valid.
- Verify invoices on landing/navigational/fuel charges.
- House-keeping of crew flight/duty records.
- House-keeping of post flight data.

Qualification and Experience Requirements

- At least 21 years of age;
- Experience in operational administrative works would be a distinct advantage;
- Good command of both spoken and written English, knowledge in Cantonese and Putonghua is preferred. Good command of both spoken and written English and Chinese. Testing of the English standard will be made via academic qualification, aptitude test or during interview;
- Proficient in Microsoft Word and Excel.

1.3.20 Supervisor, Regulatory Training & Development

Position Objectives

- Assist MRT&D, Conduct SEP Training for Cockpit/Cabin crew, First Aid Training for Cockpit / Cabin Crew

Duties & Responsibilities

- Supervise and Conduct Initial Safety and Emergency Procedures training for Cockpit and Cabin Crew
- Supervise and Conduct Annual Safety and Emergency Procedures training for Cockpit and Cabin Crew
- Conduct In-flight Audit Programme for Flight Crew and Cabin Crew to ascertain the level of competence
- Plan and arrange training facilities, i.e. training room, aircraft hands-on, CEET training
- Supervise the maintenance of training record database
- Supervise the amendment of the training manual
- Assist in the design and development of the lesson plan and syllabus
- Liaise with other departments for arranging the training i.e. SDD, Rostering, Engineering
- Liaise with external departments for arranging the training, i.e. AVSECO, HNA SYX, CI, VTC Training Facility
- Represent RT&D in departmental meeting in regards to safety training
- Develop training material such as new safety equipment requirements, power points
- Assist in the review of Cabin Safety Report
- Assist MRT&D in the investigation of in-flight safety violations
- Review any safety related notices
- Maintain training equipment, materials
- Provide training support to other departments
- Attend SAG monthly meetings, support the administrative aspects
- Assist in the preparation of section budget for the coming year
- General Administrative support
- Attend required external trainings or courses

Qualification and Experience Requirements

- Good communication and leadership skills.
- Good interpersonal, teaching, and organizational abilities.
- Knowledge of CAD Regulations, airline policies, procedures, and standards.
- Computer knowledge including Excel, Word, Power Point an advantage, good administration skills preferred.
- With at least 5 yrs experience in airline training preferably Flight or Cabin Crew
- Holder of a valid First Aid Certificate preferred.

- The successful applicant is preferred to have achieve qualification from HK CAD as per Schedule 11
- Fluent in English; Cantonese and Mandarin is preferable.
- Instructional experience an advantage.
- Knows how to swim.
- Willing to travel.

1.3.21 Safety & Emergency Procedures Trainer

Position Objectives

- Conduct SEP Training for Cockpit/Cabin crew, First Aid Training for Cockpit / Cabin Crew and other operational staff.

Duties & Responsibilities

- Conduct Initial Safety and Emergency Procedures training for Cockpit and Cabin Crew.
- Conduct Annual Safety and Emergency Procedures training for Cockpit and Cabin Crew.
- Plan and arrange training facilities.
- Update training record database.
- Update and amend training manual.
- Design and develop the lesson syllabus and lesson plan.
- Liaise with other departments for arranging the training.
- Liaise with external departments for arranging the training.
- Attend Operational Meetings with other departments
- Develop training materials.
- Assist in the Review of the Cabin Safety Report
- Assist in the investigation of in8flight safety violations
- Review any safety related notices such as Airworthiness notice
- Maintain training equipment, materials.
- Provide training support to other departments.
- General Administrative support.
- Attend necessary courses.

Qualification and Experience Requirements

- Holder of a Current A320 Type HKCAD Approved Instructor Certification.
- Holder of recognized First Aid certificate, DGR certificate preferable.
- Able to swim to a competent level.
- 5 years in an airline training environment airline crew experience is preferable with at least two years relevant work experience.
- Fluent in English. Cantonese and Mandarin is preferable.

1.3.22 Train the Trainer

Position Objectives

- Conduct Train the Trainer Course

Duties & Responsibilities

- Conduct Train the Trainer to all company instructors/examiners and trainers.
- Plan and arrange training facilities.
- Update training record database.
- Design and develop the lesson syllabus and lesson plan.
- Liaise with other departments for arranging the training.
- Liaise with external departments for arranging the training.
- Develop training materials.
- Maintain training equipment, materials.
- Provide training support to other departments.
- General Administrative support.

Qualification and Experience Requirements

- Holder of Train the Trainer Certificate from external training provider.
- 5 years in an airline training environment airline crew experience is preferable.
- Fluent in English.

1.3.23 Duties of the Duty Operations Manager (DOM)

The DOM is to facilitate communication between the parties involved and has the authority to make decisions as listed in examples below. They shall be available for contact with the crews and FOCC for any operational or technical problems that arise during the daily operation.

The following are some examples:

Typhoon Conditions:

In typhoon conditions, FOCC shall provide the DOM with the latest Forecast, METARs, Windshear and Microburst warnings that have been issued.

The DOM shall be aware of the Typhoon tracking and he is to review the aircraft limitations and wind speeds.

If the projection is fluctuating at the limits or beyond, DOM is to consult with GMF if the operations are to be continued. In the absence of GMF, DO is to be consulted.

Selection of Alternates

The DOM can provide advice during weather related events, to assist crews and FOCC in selecting appropriate alternate aerodromes prior to dispatch. Selection should consider the following factors:

- The weather at the destination;
- The weather at the alternates;
- The support services at the alternates
- Aircraft departure point (e.g. aircraft from RMQ should not divert to China);
- Crew availability at the alternate;
- The duration of the adverse weather forecast and counter measures (e.g. consider delaying the aircraft departure);
- Is the weather affecting a widespread area (e.g. fog conditions);
- Crew duty period;

FOCC is responsible for alerting Commercial Department re aircraft flow and passengers' connections i.e. can Hong Kong be the alternate, allowing the aircraft to be utilized on other services and cargo consideration (e.g. Seafood)

Flight Duty Period Extension

The DOM upon receiving FOCC's request for a Flight Duty Period Extension should review the following:

If the departure is from Hong Kong, FOCC is to make every attempt to replace the crew. FOCC is to advise DOM on availability of standby crew. DOM is to advise GMF if FDP is to be extended as a result of no standby crew.

All calculations must utilize published Block Times.

The correct amount of sectors are used in the calculation of FDP (e.g. in he event of a diversion, an extra sector needs to be included to calculate the FDP).

Confirm the maximum FDP period, with and without the extension.

Any subsequent delay to ETD as agreed by the Commander, FOCC and DOM beyond 15 minutes, a new ETD must be agreed with all parties.

Whilst the Commander's Discretion allows for an extension of a MAXIMUM of 3 hours (2 hours split duty) as per Section 7.28, the company practice for extension is 2 hours (1 hour split duty), with the 3rd hour (2nd hour) as a buffer for unforeseen off block delays only.

For the DOM to confirm the “approved extension”, the following factors should be checked;

- Have all the crews agreed to extend?
- Is flow control in-force at either the Departure or Destination airports?
- Is there any weather forecast (Departure port, En route and Destination) that may extend the flight beyond the flight plan time?

The DOM with the assistance of FOCC shall consider all the above and then formulate a service recovery plan and advise the Commander of the company's request for extending FDP. If the Commander, after consulting all the affected crew, elects to extend the FDP beyond the FTL limit, then the DOM and FOCC should review their plan and decide whether to accept the Commanders offer or not. This decision is subject to any factor(s) that may affect the safety of the flight, with the knowledge that the 3rd hour (2nd hours in split duty) extension may only be used with the approval of GMF. In the absence of GMF, DO is to be consulted.

If the DOM concluded that the flight can reach the destination within reason; DOM shall advise the Commander of his conclusion; the Commander may still opt to reject the FDP extension.

1.3.24 Flight Operations Safety and Quality Representative

The Flight Operations Department has a Flight Safety and a Quality Assurance function that forms part of the Corporate Safety Management System and Quality Management System.

The Flight Standards Manager (FSM) is the Flight Operations Safety Representative and is responsible for reviewing and investigating all Flight Operations related Airline Safety Report (ASR), Hazard Report (HR), Confidential Report (CR) and Mandatory Occurrence Report (MOR), following de-identification of such reports by the Safety Manager. He also reports findings and makes recommendations to the Director, Operations and the Safety Action Group to enhance safety of the Flight Operations Department.

The Manager, Operations Control Centre is the Safety Representative for the Operational Services , and is responsible for reviewing and investigating all ASR, SHR, CR and MORs relating to flight operations control matters. He reports findings and makes recommendations to the Director, Operations, and the Safety Action Group on flight operations control / dispatch matters.

The General Manager, Operations Control is the Flight Operations Quality Representative and is responsible for ensuring that the Flight Operations Department conforms to the Corporate Quality Management System requirements, including implementation of the departmental quality assurance program. The Flight Operations Quality representative also reports findings and making recommendations to the GM, Quality, Safety& Security for enhancement of the Corporate Quality System.

1.4 Authority, Duties and Responsibilities of the Commander

The Commander shall be responsible for the operation of his aircraft in accordance with the rules, methods and procedures prescribed in the Operations Manual (OM).

The Commander has authority to discharge all his statutory and company responsibilities for the operation, disposition and safety of the aircraft, and for the safety of all persons on board. Nothing in the OM shall be construed as limiting or derogating from this authority.

The Commander assumes responsibility for the safety of all crew members, passengers and cargo on board when the doors are closed. The Commander shall also be responsible for the operation and safety of the aircraft from the moment the aircraft is ready to move for the purpose of taking off until the moment it finally comes to rest at the end of the flight and the engine(s) used as primary propulsion units are shut down.

The Commander has authority to apply greater safety margins, including airport operating minima, if he deems it necessary.

The Commander shall:

- Be responsible for the safe operation of the aircraft and safety of its occupants and cargo during flight time;
- Have authority to give all commands he deems necessary for the purpose of securing the safety of the aircraft and of persons or property carried therein, and all persons carried in the aircraft shall obey such commands;
- Have authority to disembark any person, or any part of the cargo, which in his opinion may represent a potential hazard to the safety of the aircraft or its occupants;
- Ensure that all necessary pre-flight preparation is carried out and that he is fully informed on all factors relevant to the flight;
- Ensure that the weather forecast and reports for the proposed operating area and flight duration indicate that the flight may be conducted without infringing company operating minima;
- Satisfy himself that the aircraft is airworthy and its configuration and equipment are in accordance with the CDL and the MEL;
- Ensure that the provisions specified in the Operations Manual in respect of fuel, oil and oxygen requirements, minimum safe altitudes, airport operating minima and availability of alternate airports, where required, can be complied with for the flight;
- Ensure that the correct type of fuel, oil and oxygen is loaded and usable in sufficient quantity to meet the requirements for the flight;
- Take all reasonable steps to ensure that the load is properly distributed and safely secured and that the aircraft mass and balance is within the calculated limits for the operating conditions;
- Confirm that the aircraft performance will enable it to safely complete the planned flight(s);
- Ensure that ground facilities and services required for the flight are available and adequate;

- Ensure that the required documents, charts and manuals are carried and will remain valid throughout the flight(s), including any diversion which may reasonably be expected;
- Ensure that the pre-flight inspection has been carried out;
- Ensure that all operational procedures and checklists are complied with in accordance with the OM;
- Ensure that all passengers are briefed on the location of emergency exits and the location and use of relevant safety and emergency equipment;
- Take all reasonable steps to ensure that before take-off and before landing the flight and cabin crew are properly secured in their allocated seats;
- Take all reasonable steps to ensure that whenever the aircraft is taxiing, taking off or landing, or whenever he considers it advisable (e.g. in turbulent conditions), all passengers are properly secured in their seats, and all cabin baggage is stowed in the approved stowage;
- Not permit a flight data recorder to be disabled, switched off or erased during flight nor permit recorded data to be erased after flight in the event of an accident or an incident subject to mandatory reporting;
- Not permit a cockpit voice recorder to be disabled or switched off during flight unless he believes that the recorded data, which otherwise would be erased automatically, should be preserved for incident or accident investigation, nor permit recorded data to be manually erased during or after flight in the event of an accident or incident subject to mandatory reporting.
- Ensure that such information regarding hazardous conditions encountered in flight as may be pertinent to the safety of other aircraft, is passed to the appropriate ATC authority as soon as possible.
- Ensure that the appropriate local authority is notified without delay in the event of any emergency situation that necessitated action in violation of local regulations and/or procedures by declaring an emergency to the appropriate ATS unit. If required, submit a report to the Authority of the state of Occurrence.
- Ensure that a continuous listening watch is maintained on the guard frequency (121.5MHZ) and any appropriate radio communication frequencies at all times whenever the flight crew is manning the aircraft for the purpose of commencing and/or conducting a flight.
- Ensure that the maintenance log is correctly completed before and after flight, including any items that the flight crew may be required to carry out in the absence of ground engineering staff.
- Ensure that the Voyage Report and the Operational Flight Plan are correctly completed before and after flight. As a minimum the following information are to be recorded on the Voyage Report:
    - Aircraft registration
    - Date
    - Flight number
    - Flight crew names and duty assignment
    - Departure and arrival airports
    - Actual time of departure / arrival and flight time

- In the event of a birth or death on board, record the time, actual or approximate position and name of affected passenger(s) on the Voyage Report.
- Inform FOCC of any significant deviation from the flight plan or diversion to another aerodrome.

1.5 Duties and Responsibilities of Crew Members other than the Commander

The proper execution of any flight operations plan demands constant vigilance, cross checking and sharing of information.

Crew members shall:

- Report to the Commander any fault, failure, malfunction or defect that they believe may affect the airworthiness or safe operation of the aircraft including emergency systems.
- Report to the Commander any incident that has endangered, or could have endangered the safety of operation.
- Support the Commander in the maintenance of proper standards of professional expertise, crew discipline, conduct and personal appearance.

1.5.1 Co-Pilot

The Co-pilot is responsible to the Commander to assist in the safe and efficient conduct of the flight. In the event of the incapacitation of the Commander, the Co-pilot will assume command.

It is the specific responsibility of the Co-pilot:

- To collect and study such weather forecasts and reports, NOTAMS and other information as are relevant to the flight.
- To prepare the Operational Flight Plan and, when necessary, file the Air Traffic Services Flight Plan with the appropriate authority.
- To carry out such duties concerning the flight, in accordance with the Standard Operating Procedures, including procedures, limitations and performance relating to the specific aircraft type, as are allocated to him by the Commander.
- To confirm the safe navigation of the aircraft, maintaining a continuous and independent check upon both the geographical position of the aircraft and its safe terrain clearance.
- To safely and properly conduct the flight in compliance with the current flight plan and the Commander's instructions when the Commander is not at the controls; any change to the current flight plan is to be notified to the Commander on his return.
- Advise the Commander immediately of any apparent deviations from the desired flight plan or profile, or of any non-compliance with normal procedures, or if he considers a potentially hazardous situation is developing.

When the Co-pilot is the Pilot Flying, the duties listed above may be interchanged at the Commander's discretion. The Commander must advise the Co-pilot in advance precisely which duties he is to perform.

1.5.2 Cabin Crew

1.5.2.1 General

Cabin crew are required to be present by law on public transport flights, primarily to perform duties in the interest of the safety of passengers.

Cabin crew, in HKEA, for the purposes of CAD 371 Paragraph 32 shall be construed as "Cabin Attendants".

They must advise passengers on emergency and safety procedures during all phases of the flight, and manage procedures following an emergency in accordance with the Operations Manual and the Commander's instructions.

Each cabin crew shall:

- Be well prepared and fit for the flight
- Ensure the passenger observe the "Fasten Seat Belt" and "No Smoking" signs
- Ensure the comfort and safety of the passengers
- Ensure the passengers escape safely in an emergency evacuation.

1.5.2.2 Senior Cabin Crew Member (SCCM)

A senior cabin crew member must be nominated for every passenger flight. Refer to SEP Manual for definition of SCC in HKEA.

The SCCM shall:

- Have overall responsibility to the aircraft Commander for the conduct, co-ordination and performance of all cabin operations and safety duties.
- Verify that all cabin crew are fit for, and hold all necessary documents for the flight.
- Co-ordinate and organize the functions and tasks of all cabin crew (cabin crew briefing, delegated positions and working areas, in-flight service duties).
- Checking of emergency equipment, pre-flight safety briefing and reporting matters concerning safety (irregularities and malfunctions) to the Commander.
- Debriefing with cabin crew when required.
- Ensuring efficient communication with all flight crew members, other cabin crew and ground staff.
- Visiting / contacting the flight deck at regular intervals.

1.5.3 Supernumerary Crew

When additional crew members are carried, either in the flight deck or in the cabin, they will perform such duties as are required by the Commander or SCCM respectively. These duties should be consistent with their previous training and qualifications pertaining to Flight Crew and / or Cabin Crew duty.

Supernumerary crew must ensure that their presence has no adverse effect on the safety or efficient conduct of the operation.

1.6 Merlot Crew System

This section provides the information on how crew member can access the Mobile / PC of Merlot Crew System at the ABO so as to check their Crew Recency Qualification and Employee Details.

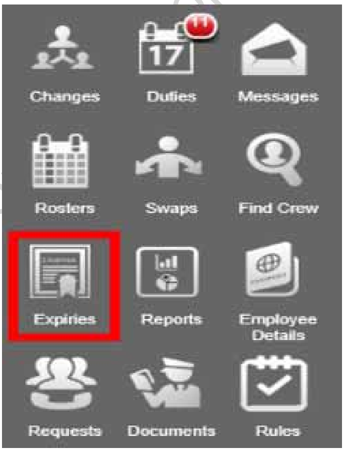
1.6.1 How to Check Qualifications and Details

Using Crew Portal on your computer or mobile device, qualifications and individual information can be checked and, in specific cases, updated.

Check Qualifications & Expiries:

(1) Log into Crew Portal

(2) Select Expires



(3) A list of your expiries to be shown, including the type, last passed, next due, next planned and remaining days valid. Any concerns regarding the information listed shall address to the training department.

Expiries

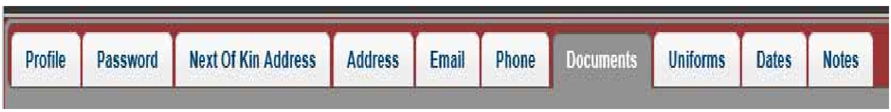
Show 100 entries Search Type:

Type	Last Passed	Next Due	Next Planned	Remaining Days
CRS-CRM	04/07/2016 L	03/07/2017 L	22/05/2017 L	47
CRS-INSTRUMENT_RATING	10/02/2017 L	09/08/2017 L		84
CRS-ASTP	21/09/2016 L	20/09/2017 L		126
CRS-AEP_DG	29/09/2016 L	28/09/2017 L		134
CRS-LHS-LINE CHECK	22/03/2017 L	21/03/2018 L		308
CRS-ROUTE BRIEFING	22/03/2017 L	21/03/2018 L		308
CRS-MEDICAL	14/03/2017 L	31/03/2018 L		318
CRS-FIRE_SMOKE_DRILL	09/03/2017 L	08/03/2020 L		1026
CRS-ELT-6	22/05/2008 L	31/12/2099 L		30178
CRS-CAT_C_CXR	28/01/2017 L			0

1.6.2 Check Passport and Other Details:

(1) Click on Employee Details

(2) Select Documents from the top tabs.



(3) Details of visa, permits, IDs and passport(s) to be shown.

Document Type	Number	Place of Issue	Issuing Authority	Issue Date	Expiry Date	Image
ICAO ID	22111			30/01/1900	30/12/2020	
Passport	HO222222	HK	Home Affairs	01/12/2015	01/12/2025	
Passport	HO111111111	HK	Home Affairs	01/02/2014	02/02/2024	

(4) Click on New and fill out all required information for adding new document.

(5) Select the line you would like to edit (this will highlight the line), then select edit to update a document. Save the information when finished.

(6) Flight Crew shall inform Flight Operations by email with any changes have been made.

1.6.3 Unable to sign in Crew Portal

- If Merlot system is down:
  - Paper sign in with ABO that will be later updated into the Merlot system.
- If crew goes directly to aircraft:
  - Crew Control signs in the crew member. Crew can access portal from any mobile device and should check their expiries if they are concerned.

Chapter 2 – Operational Control and Supervision

2.1 Supervision by the Operator

The Director, Operations (DO) is responsible for the overall supervision of flight operations. This responsibility includes the setting up of the flight operations organization and management system and appointment of department/ managers.

The supervision of operations is achieved by:

- Ensuring that operations comply with the requirements of HKEA AOC and its associated Operations Specifications.
- Ensuring that aircraft are operated in compliance with the terms of their Certificate of Airworthiness and within the approved limitations contained in the Airplane Flight Manual.
- Setting up an operational control process that includes procedures and instructions for all types of operation both on ground and in flight that define duty for ground personnel and crew members.
- Setting up a checklist system to be used by crew members under normal, abnormal and emergency conditions to ensure that the operating procedures of the Operations Manual are adhered to.
- Checking, analyzing and storing flight and maintenance records, flight and cabin crew reports as well as passenger feedbacks/complaints, if any.
- Ensuring that corrective actions are initiated and implemented for any non-conformities of policy and procedures identified through the Safety Management System and the Quality System.
- When there is amendment on HKCAD regulations a notification will be sent by HKCAD to DO, DO is to notify MOL, MOL is responsible to distribute the information to respective department.

These functions of the Flight Operations Department are shared between two mains of the Department: Flying and Operation Controls.

2.1.1 Flying

The Flight Crew section is headed by the General Manager - Flying and is responsible for day to day aircraft operations in accordance with Company operating policies. The DO and GMF set detailed operating policies, rules, instructions and procedures with regard to the following areas of operational control and supervision. Details are provided in s 3 to 12 of this Manual.

2.1.1.1 Crew Resource Management

- Flight crew hiring, promotion, upgrade (in conjunction with the Human Resources Department)
- General policies on the use of alcohols and psychoactive substances, and deliberate violations of Company safety standards by flight crew member.

2.1.1.2 Line Operations

- Flight crew compositions, qualifications and fit for duty

- Flight crew duties and responsibilities
- Flight Time Limitations
- Operational Rules and Policies
- Pre Flight Procedure
- Ground handling and passenger handling Procedures
- In-Flight operations

2.1.1.3 Flight Crew Training

- Training personnel qualification and approval
- Training program and syllabi
- Training records

2.1.1.4 Technical Operations

- Aircraft equipment specification
- MEL / CDL

2.1.1.5 Flight Operations Quality and Safety Program

- Flight Operations Quality Program
- Flight Operations Safety and Risk Management Programme.

2.1.2 Operation Control

The Operation Control section is headed by the General Manager, Operation Control and is responsible for setting and implementing policies, rules, instructions and procedures with regard to the following areas of operation control and supervision. Details of the Operations Control section are contained in the Operations Services Manual.

2.1.2.1 Operational Personnel Management

- Operations Officer hiring, promotion, upgrade and training
- Scheduling and rostering of operational personnel
- General policies on the use of alcohols and psychoactive substances, and deliberate violation of company operational safety standards by operational personnel

2.1.2.2 Operational Control

- Aircraft deployment
- Flight Preparation and Dispatch
- Flight Monitoring

Note: *AIP is available to Operation Control personnel through website of the State Authority.*

2.1.2.3 Crew Resource Management in the Following Areas

- Crew Planning
- Crew Scheduling and Reassignment

2.1.2.4 Technical Operations

- Aircraft Performance

- Route studies
- Aircraft equipment specification
- Flight Preparation

2.1.2.5 Manual, Records and Library Services

- Operations Manual
- Crew and Post Flight Records
- Library Management

2.1.2.6 Operational Services Quality and Safety program

- Flight Operations Quality Assurance Program
- Flight Operations Safety and risk Management Program

2.2 Operational Instructions and Information

The Director, Operations (DO) is responsible for the overall operation control and supervision process, information that are of importance to the safe and efficiency operation of aircraft, will be promulgated by HKEA to supplement the Operations Manual.

2.2.1 Hong Kong Express Airways Information

This will be published in the form of “Flight Crew Operational Notices (FCON)” covering the areas listed below. They will normally be issued by the GMF, TM or FSM, and will be dated as to their period of applicability. The FCONs in circulation are subject to review by the FSM on a monthly basis.

The notices may be promulgated by means of paper bulletins and by internal electronic mail.

Technical information such as:

- General technical or engineering notices, such as information on the type and qualities of anti-icing and de-icing fluids being used.
- Specific technical notices, such as information on aircraft technical status, or modification(s) being progressively carried out on an aircraft type and their associated operational impact.

Operational information such as:

- Aircraft performance that will be available on a particular runway that has been temporarily shortened because of maintenance work.
- Changes of airport approach procedures, minima, departure or missed approach procedures.
- Change of NAVAID frequency.

Administrative information such as

- Crew scheduling.
- Country regulations change (immigration, visa and health requirements).
- Security measures.

Flight Safety information

- Safety-criterial information needs to be distributed to Cockpit Crew, DQSS or MFOQA will either issuing Safety Notice or asking FSM/ GMF to issue FCON.
- To provide safety information based on airline experience or studies, or following Aircraft Manufacturers or HKCAD advice.

2.2.2 Aircraft Manufacturers Information

Aircraft manufacturer provides a great part of the available technical, operational and safety data. This information will be promulgated, either electronically via the Company and Aircraft manufacturers' site, after the Flight Technical Manager has assessed its validity and applicability to the company's operations.

2.2.2.1 Airbus Flight Operations Transmission (FOT) Revision Flow

AIRBUS FLIGHT OPERATIONS TRANSMISSION (FOT) REVISION FLOW

1) Description:

Flight Operations Transmissions (FOT) highlight significant Flight Operations-related information. The nature and level of information may vary depending on the topics that are addressed in the FOT. Therefore, the FOTs have 4 different classifications:

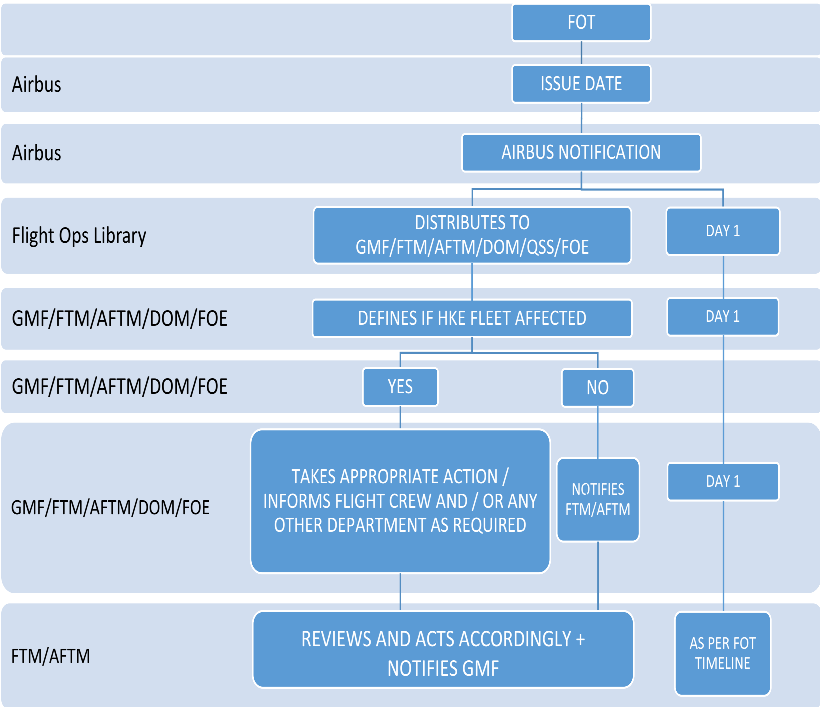
- General Information: A "General Information FOT" reminds or informs Airbus operators on general operational topics, new Airbus developments, general non-Airbus related information.
- Advice: An "Advice FOT" highlights or reminds an existing recommendation or procedure or announces a significant procedural change that enhances flight operations or improves the operational reliability.
- Operational Recommendation: An "Operational Recommendation FOT" informs of an operational issue that may have a significant impact on aircraft operations and the corresponding operational recommendations. This may involve a major change in the operational documentation and may be associated whit a white OEB/CCB (Operations Engineering Bulletin/Cabin Crew Bulletin) or with an unplanned revision of the flight operations manuals. In case of OEB/CCB, the OEB/CCB and its effectivity per MSN is attached to the FOT as advance data.
- Airworthiness or Safety: An "Airworthiness or Safety FOT" informs about operational issues that may have a significant impact on safety or airworthiness and provide the corresponding operational recommendations that must be applied to ensure safe aircraft operations. This may involve a major safety-related change to the operational documentation, procedures, dispatch conditions, performance determination. It may be associated with a red OEB/CCB, an Airworthiness Directive or with a critical unplanned revision of the flight operations manuals, sometimes including an AFM revision. In case of OEB/CCB, the OEB/CCB and its effectivity per MSN is attached to the FOT as advance data.

2) Time Limit:

In order to introduce an acceptable level of flexibility that balances the operational environment with the need to implement the OEB/CCB/FOT recommendations timely, a 30-day time limit for application of white OEB/CCB and FOT classified "Operational Recommendations" is now applicable.

Considering their potential safety or airworthiness impact, the 30-day time limit does not apply to the red OEB/CCB and/or FOT that are classified "Airworthiness or Safety". Relevant notes in these FOT and/or red OEB/CCB alert on the priority of the notice.

3) FOT Workflow



2.2.2.2 OM-B Minimum Equipment List Revision Flow

OM-B MINIMUM EQUIPMENT LIST REVISION FLOW

- **CAD 549 Requirement**

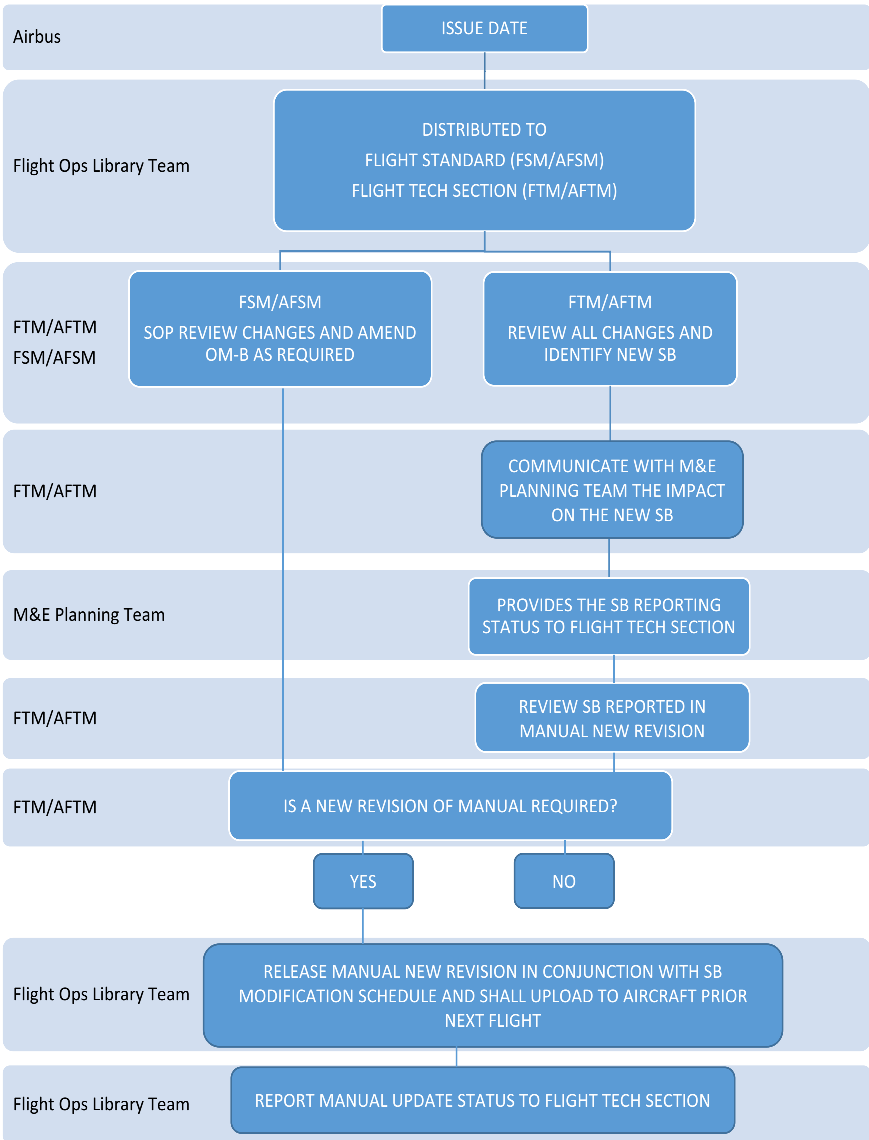
When an MMEL revision is issued, operators of the particular aircraft type concerned will be allowed within 90 days from the date of publication of the MMEL to amend their MEL.

- **MEL Revision Flow Chart**

NOTE: FTM/AFTM will ensure the following timelines will apply.

			MMEL		
Airbus		+	Issue Date		
Flight Ops Library	Available on Airbus World as the date of publication (Airbus shipping note number / date)	+	Distributed to FOE (Flight Operation Engineer) + M&E (distribution list provided by M&E) + FTM/AFTM	DAY 1	
FOE	MMEL Preliminary Review (List of Modifications, Summary of Highlights)		Load Airbus MMEL xml file to Airbus FODM	DAY 3	
M&E	Provide MMEL comment to FOE	+		DAY 14	
FOE	Amendment on AIrbus FODM		Provide MEL project to M&E	DAY 47	
M&E	Review MEL Project product and distribute to HKAR-183 organization if required			DAY 47	
HKAR-183	Provides comment to FOE	+		DAY 57	
FOE	Apply final comments as required		Submit MEL Project Product for Final review	DAY 61	
FTM/AFTM	Perform Final Review and Submit to GMF for Approval			DAY 67	
GMF	Perform Final Review and Submit to CAD for Approval			DAY 70	
CAD	Approval letter release				
Flight Ops Library	Will prepare MEL revision				
Flight Ops Library	Will release approved MEL revision on DMS and affected aircrafts				

2.2.2.3 AIRBUS MANUAL NEW REVISION FLOW



2.2.2.4 RVSM RENEWAL FLOW

RVSM RENEWAL FLOW

- CAD 360 Requirement

As per CAD 360 4-31.4, HKE shall monitor the height-keeping performance of two aeroplanes of each aircraft type grouping at least once every two years or within intervals of 1,000 flight hours per aeroplane, whichever period is longer. HKE should establish a monitoring schedule for different aircraft type and provide CAD with the monitoring data and monitoring methodology on an annual basis or when required. HKE establish a schedule for all A320 family aircraft every two years.

- RVSM Renewal Flow Chart

NOTE: FTM/AFTM will ensure the following timelines will apply.

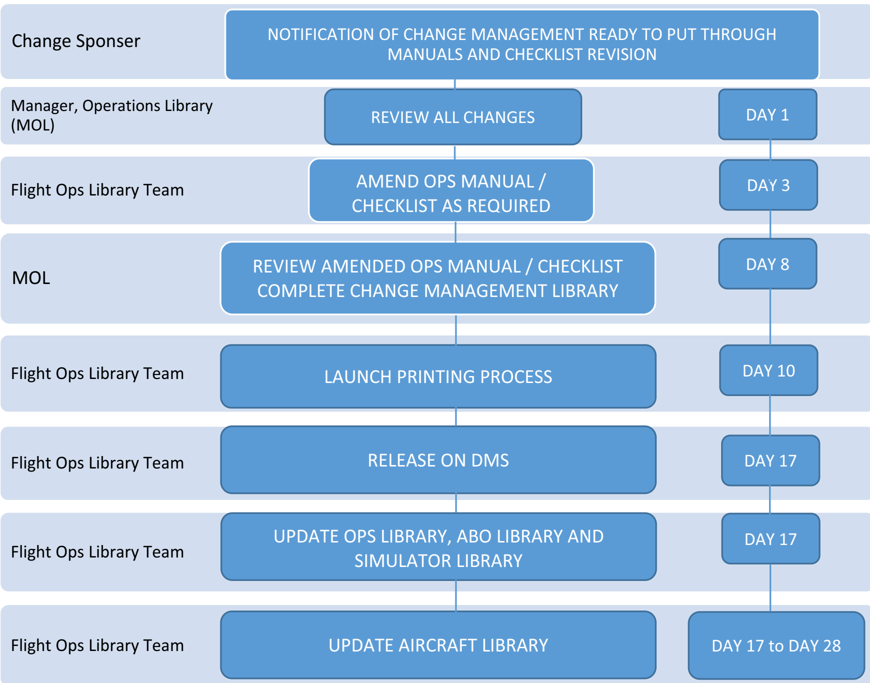
*REMARK: Monitoring result will be permanently kept in monitoring agency's database. HKE could request the official report at any time if necessary.
In case of monitoring result shows an airframe to be non-compliant, investigation is required from HKE, then take maintenance action if necessary.
For details, please refer: http://www.aerothai.co.th/maar/docs/NonCompliantProcedure.pdf

2.2.3 Documentation and Records Management

The Manager Operations Library is responsible for administering and storage of all flight operations documents and records in relation to that required for compliance of regulatory requirements. These include management of:

- Office Master Library
- Aircraft Library
  - A list of documents and manuals carried onboard the aircraft library is provided in Chapter 8.1.12.4 of this Manual.
- Flight Crew Hours Records
- Publications and distribution of documentations
  - Following notification of Chang Management approval of operational document revision/amendment, the Manager, Operations (Library) will notify the Operations Library Team to arrange printing, and release on DMS and Aircraft Library. Operations Manual / OEM Manual control log to be completed and further checked by the MOL.

2.2.3.1 Operations Manual and Checklist New Revision Flow



2.2.4 Emergency Equipment List

A record of Emergency and Survival equipment onboard company aircraft shall be kept and be immediately available for communication to rescue co-ordination centres.

2 of the Safety and Emergency Procedures Manual contains a record of the emergency and survival equipment onboard HKEA aircraft.

2.2.5 Notice to Airmen (NOTAM)

A Notice to Airmen (NOTAM) is a notice containing information (not known sufficiently in advance to publicise by other means) concerning the establishment, condition, or change in any component (facility, service, or procedure of, or hazard in the airspace system) the timely knowledge of which is essential to personnel concerned with flight operations.

NOTAMs will be provided to all flight crew prior to each flight through the Flight Envelope.

2.3 Flight Safety

Flight Safety has been integrated in the Quality and Safety Management System. Refer to Chapter 3 of this Manual.

2.4 Operational Control

Operational Control with respect to flight safety means the exercise of authority over the initiation, continuation, diversion and termination of a flight. The authority for Operational Control is solely rested on the Commander.

Line operations and operations control policies and procedures are established to ensure day to day operations of the airline are in compliance with regulatory requirements of the HKCAD and any other applicable authorities and for the safe and efficient conduct of any Company flight operations, and are detailed in s 4 to 8 of this Manual.

The line operations policies and procedures will be reviewed by the DO, GMF, FSM and TM from time to time, but not less than once every 6 months, to reflect changes in regulatory requirements, area of operations, types of Company aircraft, and feedback from the Company Safety Management and the Quality Assurance Systems.

The policy for the Company Standard Operating Procedures for each fleet shall follow that of the manufacturers recommended procedures. When it is deemed necessary to change or enhance the procedures the company will use an evaluation tool. Before implementation of the changed procedures the DO shall request a NTO (No Technical Objection) from the manufacturer to ensure that the new procedures are technically accurate, and has no significant compromise to safety. When the NTO has been obtained, GMF is responsible for overseeing the implementation of the changed procedures.

Any operational staff (crew or ground personnel) who deliberately violate company operational policies and procedures and safety standards will be subject to disciplinary action in accordance with the condition of service and/or the prevailing Company staff policies.

2.4.1 Before and During the Flight

- For operations purposes, Operational Control commences at the Flight Crew's reporting time.
- FOCC supports the Commander to conduct safe and efficient flight operations in coordination with other departments and agencies
- Ramp or station personal supervise all airport activities (passenger, ground handling, loading) and coordinate the progress of these activities with FOCC and the Commander of the flight.

2.4.2 After the Flight

Operational Control terminates upon confirmation that the last flight in a series of flights conducted by a Flight Crew has come to a stop at its assigned parking bay or other place designated by the Commander.

When terminating any duty period at home base the Commander shall report by phone to FOCC and report any occurrences/reports submitted in the Flight Document Envelope, any delays or NIL.

Delays shall be reported as follows:

- READY time and the reason for any delay between READY and chocks off;
- If actual flight time exceeded OFP flight time: The reason for the extension;

- If ATA was after STA: The reason for the late arrival (e.g. insufficient scheduled block time, total taxi time greater than 25 minutes, etc.).

Any failure to establish contact with FOCC by phone shall be reported by email immediately.

2.4.3 Duty Operations Manager (DOM)

In addition to the duty manager of the Flight Operations Control Centre, a Duty Operations Manager (DOM) shall be assigned for each day during the period when HKEA flights are scheduled or operating. The DOM is a type rated management pilot. He is not required to be on duty at the FOCC, but shall be contactable throughout the period of assigned duty for consultation and/or decisions on operating and / or technical issues as they arise during operations. If necessary, and when outside the period of assigned duty of the DOM, the GMF, FSM or TM should be contacted for advice.

The name of the DOM shall be published on the Movements Board in Flight Operations Control Centre and Dispatch Office.

Personnel eligible to act as DOM shall be nominated by the DO and the GMF. During the introductory phase of a new aircraft type, experienced operating or engineering staff, or non type rated pilots may be nominated as DOM.

An Aircraft Commander whose aircraft is subjected to any flight irregularity shall contact FOCC at the earliest opportunity, using the most convenient and

expeditious means of communications. From outports this is likely to be by VHF radio, ACARS, mobile phone or SITA via the Handling Agent.

Flight irregularities include:

- Significant technical or weather problems, involving a cancellation, delay or diversion.
- Any Flight Safety or Mandatory Occurrence Report.
- Any incident likely to cause serious adverse comment by passengers.

FOCC will contact the DOM for specialist advice whenever necessary.

2.5 Power of Authority

2.5.1 Hong Kong Civil Aviation Department (HKCAD)

The HKCAD is the regulatory authority supervising HKEA flight operations and maintenance. Duly Authorized inspectors, who can identify themselves on duty, have the power to inspect flight operations and maintenance activities in HKEA as follows:

- Inspection of flight operations / visits to the flight deck
- Those personnel who are Authorized by the HKCAD are to be permitted at any time to board and fly in any HKEA aircraft and to enter and remain on the flight deck unless, in the opinion of the Commander, the safety of the aircraft would be endangered.
- Inspection of documents and records
- Those personnel of the HKCAD who can identify themselves and are tasked with inspections of the flight operations and maintenance activities must be granted access to all documents that are relevant to flight safety and maintenance.

Whenever such inspections, including visits to HKEAHKEA offices, are requested by the HKCAD the inspector shall be accompanied by a competent member of the relevant company operations or maintenance department.

2.5.2 Foreign States' Aviation Administration

Foreign State's Aviation Administration may inspect HKEA branch and agent that is related to aircraft operations and set up within their country. When the aircraft of HKEA lands and remains within their country, Foreign State's Aviation Administration inspectors and / or the Regional. Administration of their country may board the aircraft to inspect without any advance notification.

Authorized Inspectors have the power to comprehensively inspect the operation of HKEA branch or agent, including manual and documents check. This power is inclusive of performing onboard inspection of the aircraft for the following:

- Aircraft airworthiness
- Manuals
- Documentation
- Safety equipment
- Cockpit and Cabin crew certificates and
- Review company procedures

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Chapter 3 – Quality and Safety Management System

3.1 Introduction

The Flight Operations Quality and Safety Management System forms part of the HKEA Quality and Safety Management System specified in the Corporate Organization and Management Manual (COMM) and Safety Management System Manual (SMSM) and conforms to the requirements of the Corporate Organization and Management Manual (COMM).

This section should be read in conjunction with the Quality System and Safety Management System contained in the Corporate Organization and Management Manual (COMM) and Safety Management System Manual (SMSM).

3.2 Management Commitment

The Director, Operations (DO) is responsible for the effective implementation of the Quality and Safety policy as laid down in the COMM and SMSM, for the Flight Operations Department and is the accountable manager for the Flight Operations Quality and Safety Management System.

The DO appoints the following senior managers in the Flight Operations Department as Departmental Quality and Safety representatives.

- General Manager Flying (GMF)
- Flight Standards Manager (FSM)

Note: *Refer to SMSM Section 5 for the details of Safety Policy, and COMM Section 2.1.2 for the details of Quality Policy*

3.3 Departmental Roles and Responsibilities

Roles and responsibilities of the Department Quality and Safety Representatives in the Corporate Quality and Safety System are outlined in the COMM.

The GMF is the leader of the accident investigation team (Crisis Management manual)

The GMF and FSM are quality and safety representatives of the Flight Operations Department.

The DO, GMF and FSM are responsible for the initiation and/or implementation of corrective and preventative actions for correcting and preventing safety and quality non-conformities.

3.4 Documentation

Findings of investigation and preparation and implementation of Corrective Action Plan should be documented and forward to the QSS with the SMSM and COMM.

3.5 Flight Operations Quality System

The Flight Operations Quality System is implemented in accordance with the Quality Management System specified in the Corporate Organization and Management Manual. Through the implementation and maintenance of the systems described in this section compliance of the operational requirements, standards and operational procedures will be monitored and ensured.

The Director, Operations is the responsible manager for the Flight Operations Quality System. The effectiveness of the Quality System is reviewed and evaluated at least once a year by the Quality Review Board, (in accordance with criteria specified in the COMM), comprising of the following Senior Flight Operations managers. Instructions and guidance should be provided to the departmental quality representatives for any further actions if required.

- Director, Operations
- General Manager Flying
- General Manager Training

The implementation and routine maintenance of the Flight Operations Quality System is through the following Quality Representatives:

- Flight Standards Manager - Is responsible for ensuring that monitoring of flying operations and training are conducted in accordance with the Flight Operations internal and external audit plans and corrective actions are implemented.

3.5.1 Internal and External Monitoring Program

An external service providers and vendors of Flight Operations are selected upon meeting HKEA and regulatory requirements.

- Internal and external monitoring is achieved through the audit and inspection programs.
- When an external service providers is enlisted to provide flight operations functions, DO is responsible for ensuring the contract(s) or agreement(s) shall identify measurable specifications that can be monitored to ensure requirements that affect safety or security of flight operations are being fulfilled by the service provider. DO is to appoint an appropriate manager to monitor the external service providers to ensure such requirements are fulfilled. These functions includes but not limited to; recruitment, training, auditing. The monitoring may include inspection of the out sourced functions and / or an audit on the out sourced function.
- Flight Operations - Flight Document, Crew Records.
- Training - Training Organization and Equipment, Training Observation, Training Records.
- Operations Control and Support - Navigation and Route Analysis and Performance Calculations.
- Document Control - Manual Preparation and Distribution, Aircraft Library.
- The Flight Operations Audit and Inspection Program is housed in Coruson as part of the HKEA Internal Audit Plan.
- Auditors - The Flight Operations Department internal audits shall be conducted by the use of suitably qualified internal auditors as defined in COMM Section 3.

- The process for addressing findings that result from audits shall be in accordance with section 3 COMM.

3.5.2 Flight Operations Internal Review Process

Surveillance of Flight Operations is accomplished through an internal review process. Each meeting will review to ensure; standards are maintained, anticipated future needs, assessing opportunities for improvement and assessing the needs for the management system, including Safety and Quality aspects.

- Line Training Captain Meeting

  Interval: At least once every 6 months
  Agenda: Training and Standard
  Chairman: General Manager Flying
  Attendees: General Manger Training, Flight Standards Manager and a minimum of Two Line Training Captains
  The meeting minutes will be taken by the Officer, Flight Operations Administration, Operations

- FOP Technical Meetings

  Interval: At least once every 6 months
  Agenda: Training, Standard and Technical
  Chairman: General Manager Flying
  Attendees: General Manger Training, Flight Standards Manager, Flight Technical Manger and Flight Development Manger
  The meeting minutes will be taken by the Supervisor, Flight Navigation

3.6 Safety Prevention and Risk Management Program

Internal reporting procedures should be in accordance with the SMSM Chapter 8.

A guide of incidents and events that should be reported as Air Safety Report (ASR) or Mandatory Occurrence Report (MOR) is documented in the SMSM 8. For ease of reference they are repeated in this section 11 of this Manual.

The Flight Operations Quality Assurance (FOQA) Program is mainly used by Flight Operations and Engineering Department. Trend Analysis and triggered (exceedence) events are provided by the Quality, Safety & Security Department.

The GMF, with senior management members of the Flight Operations Department, should review as necessary all de-identified internal reports, including but not limiting to Air Safety Report, Hazard Report and Mandatory Occurrence Report, and data from the FDM Program (following de-identification of such report by the Manager FDP), and initiate corrective and preventative action as necessary.

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Chapter 4 – Crew Composition

4.1 Method for Determining Crew Composition

4.1.1 Flight Crew

The minimum flight crew is stated in the Airplane Flight Manual.

Note: *For A320 type, this is two pilots, one of whom must be a qualified captain and nominated as the aircraft Commander. The minimum number of flight crew required for each aircraft taking into account the Company Flight Time Limitation scheme and the nature of the commercial task varies from time to time.*

Inexperienced Flight Crew Member

A flight crew member is inexperienced, following completion of type rating or command training, until he has achieved 40 sectors after being released to the line.

Inexperienced flight crew may not be rostered together.

4.1.2 Cabin Crew

The minimum number of cabin crew (flight attendants) when carrying one or more passengers is one per 50, or fraction of 50, passenger seats installed on the aircraft.

Note: *Under Hong Kong legislation, a passenger is defined as a person other than member of the crew.*

Additional cabin crew may be carried on board dependent on Company service requirements on the route. These additional crew members must also be trained, qualified and proficient to perform their assigned duties.

4.2 Designation of the Commander

The Commander of the Aircraft will be the Captain nominated for the flight or series of flights and will be the first name to appear on the Voyage Report. The rest of the crew will be listed in order of the Chain of Command, from top to bottom.

HKEA will only nominate a Pilot as Commander if he meets the minimum qualifications and recency laid down in this section of the manual. The second in Command will be the next most Senior Pilot rostered for the flight.

During training flights, supervision flights and check flights with the instructor occupying the RH seat, the instructor will be nominated as the Commander of the flight. On flights during which the instructor is observing the conduct of the flight from the observer's seat relating solely to the command up-grade when the trainee has passed both his initial line check and the loft.The TRE shall be the designated Commander as nominated by the company. If in his judgment, the safety of the flight necessitates it, he shall provide the instruction and when safe to do so he may assume the position of the PIC.

Except during training flights as per paragraph above or for extension of FDP by in-flight relief the designed Captain will operate from the LH seat.

2 Captains shall operate line flights without check or training duties only if all attempts at locating a First Officer have failed and a flight cancellation is imminent.

Both Captains must have current proficiency checks and line checks in the seat they occupy.

When operating line flights without check or training duties with 2 Captains special consideration must be given to the unique CRM aspects of this crew complement, and appropriate mitigation measures must be taken by the designated Commander.

When the crew composition is required to be increased to 3 flight crew to satisfy in-flight relief as listed in Chapter 7.11.1 and Chapter 7.11.2; the company may assign more than 1 Captain for the flight.

4.3 Flight Crew Incapacitation

If the Commander becomes incapacitated while in flight, the Command of the Aircraft is to be assumed by following the Chain of Command, OM-A section 4.3. He will exercise judgment in deciding whether to return, continue to the destination or to land at an intermediate airfield with medical facilities.

For pilot incapacitation during a flight into an airport with LVO operations the company recommends that the aircraft diverts to the alternate.If an approach has started and is beyond the final fix and under extreme circumstances, the decision remains at the crew's discretion.The consideration to continue should be that the Aircraft is established in a stable approach with Autoland status operational.

Any situation in which the Commander or any member of the minimum required flight crew is incapacitated and incapable of further duty is to be regarded as an emergency.

The succession Chain of Command in the case of flight crew incapacitation shall be as follows:

- Commander
- Instructor observing the flight on duty (if present)
- First Officer
- Senior Purser
- Flight Purser
- Cabin Attendant

After landing, the person who has assumed Command is to notify Movements Control giving details of the Commander's disability and will await further instructions; a Mandatory Occurrence Report (MOR) is to be submitted.

4.4 Operation on More Than One Type

HKEA is currently not approved to operate Mixed Fleet Flying (MFF).

4.5 Common Language

The English language is to be used by all crew members for communication:

- On the flight deck during line operations
- Between the flight crew and cabin crew during line operations
- During flight crew training and evaluation activities

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Chapter 5 – Qualification Requirements

5.1 General

All crew members have to carry with them the required licenses / certificates with appropriate rating(s) to exercise their duties (as issued / agreed by CAD).

All crew members are responsible for the renewal of their licenses / certificates.

5.1.1 Interview and Screening

Candidates, prior to being employed as flight crew members, are screened, as a minimum for the following attributes.

- Technical Competencies and skills
- Aviation experience
- Credentials and Licenses
- Interpersonal skills
- Medical fitness / Psychoactive Substances Screening
- Security background
- Common language(s) fluency

5.1.2 Pre Flight Preparation

Prior to commencement of any flight and, in a series of consecutive flights, after each full rest period (e.g. Ex-HKG or Overnight flights) the Crew Members should ensure the following are carried on the course of their duty;

- Check and Validate Travel Documents (i.e. Valid passport, Visas* if required)
- License
- Medical Certificate
- Crew Member Certificate (CMC)
- Check and Validate Certificate of Competency (COC)
  (1) Training Validity and Expiry Dates
  (2) Duly signed by authorized Examiner or Instructor

5.2 Flight crew

5.2.1 Joining Requirements

Qualifications and experience that permit the issue of a Hong Kong Commercial Pilot's License. Generally:

- A valid Hong Kong ATPL, or CPL with passes in ATPL subjects from an ICAO contracting State, or equivalent
- A Valid Instrument Rating and Flight Radiotelephony Operator's Restricted License.

With Minimum Flying Experience:

- Captains - A total of 3,000 hours of which a minimum of 1,000 hours must have been on multi-engine jet, military fast-jet or turbine aircraft;

- First Officers - A total of 1,000 hours of which 500 hours must be on a FAR / JAR 25 aircraft (10,000 kgs / 19 seat); or a total of over 500 hours of which 500 hours must be on type
- Second Officers - A total of 250 hours of which 100 hours must be PIC on a fixed wing aircraft

For individuals with previous airline experience the minimum experience requirement may be assessed by the General Manager - Flying.

5.2.2 Licenses

All flight crew members shall hold an applicable and valid license acceptable to the HKCAD, and be suitably qualified and competent to conduct the duties assigned to them.

The holder of a license or rating shall not exercise privileges other than those granted by that license or rating.

Pilots are required to carry on board the aircraft the applicable licenses as detailed below.

Captains

- An Airline Transport Pilots License (ATPL) endorsed in Part 1 for the aircraft type to be operated, and containing up-to-date certificates in respect of medical fitness, flying competency and Instrument Rating.
- A valid Radiotelephony Operators License.

Senior First Officers / First Officers / Second Officers

- A minimum of Commercial Pilots License (CPL) endorsed for the aircraft type, and containing up-to-date certificates in respect of medical fitness, flying competency and Instrument Rating. Pilots must also have demonstrated technical knowledge at ATPL level.
- A valid Radiotelephony Operators License.

5.2.3 Maintenance of Licenses

Under Hong Kong legislation, it is the responsibility of individual pilots not to fly when any aspect of their license is invalid.

The company will maintain records showing the dates on which licenses, tests, ratings and medical certificates become due for renewal. If a license discrepancy is thought to exist, Manager Flight Operations Administration (MFOA) is to be informed without delay.

5.2.4 Recency

A Captain must have had at least one takeoff and landing in the preceding 35 days. A Captain may renew his 35 days recency by carrying out a takeoff and landing during a public transport flight with a Training Captain, provided he is not operating as Captain on that flight. Revalidation may be carried out in the simulator as per OM-D Pilot Training Manual.

Handling Recency - A pilot may not fly as Captain or Co-pilot unless in the preceding 90 days he has carried out at least 3 takeoffs and 3 landings in an aircraft of the type to be used on the flight. This recency cannot be renewed on a public transport flight. Revalidation may be carried out in the simulator or aircraft as per OM-D Pilot Training Manual.

Captains are to have adequate knowledge of the routes to be flown, including the alternate airports, facilities and procedures. The period of validity of the route and airport competence is 12 months, which may be revalidated by operating on that route or to the airport concerned.

5.2.5 Upgrades

This section provides the minimum qualifications for upgrade considerations. Upgrades to Training Personnel and Captain are subject to Company requirements.

Upgrade requirements for Training Personnel are contained in the OM (D) - Pilot Training Manual.

Captain on Probation

- Pass 1 PC as Captain on Probation
- Pass 1 LC following 6 months as Captain on Probation

Note: *If the individual cannot be confirmed to Captain, crew will revert back to FO, until reassessed as suitable for upgrade.*

First Officer to Captain on Probation

- Same minimum flying hours as new joining Captain
- Minimum 6 months as FO within the Company
- Demonstrate adequate capability for Command upgrade during line operations, plus at least one Proficiency Check and / or Line Check following conversion to type.
- Successful completion of Pre Command Training Course and the Command Training Course.

Second Officer to First Officer

- Minimum 12 months as SO following initial line check
- Passed his / her annual line check
- Completed 2 Proficiency Check within this period

Note: *Hiring and Upgrade policies of Flight Operational Personnel other than Flight Crew are contained in the Operational Services Manual.*

5.2.6 Operational Restrictions

The weather minima to be applied to take-offs and landings by First Officers and second officers are as follows:

First Officer:

- Take off maximum crosswind component 15kts.
- Landing maximum crosswind component 15kts
- Reported / Actual cloud ceiling and RVR / visibility must be in excess of 300 FT ceiling and 1500 meters visibility.
- Normal aircraft limitations and operating minima apply to takeoffs and landings by First Officer when flying with a Line Training Captain.

Second Officer:

- Take off maximum crosswind component 10kts.
- Landing maximum crosswind component 10kts and a tailwind component of 5 kts.
- Reported / Actual cloud ceiling and RVR / visibility must be in excess of 1500 FT ceiling and 3000 meters visibility.
- Line Training Captains may, at their discretion, permit Second Officers takeoffs and landings up to a crosswind component of 20kts and a tailwind component of 5kts.
- Line Training Captains may, at their discretion, permit Second Officers takeoffs and landings with a reported cloud ceiling and RVR / visibility at or above CAT1 minima.
- Takeoffs and landings are not permitted at CAT C aerodromes.

Commanders may, at their discretion, permit Second Officers (SO) to carry out take-offs and landings from the right-hand seat, subject to the following provisions:

- For landing, minimum LDA - 2500m.
- For take-off and landing, normal runway surface (no slush, snow, ice or standing water).
- For take-off and landing, no significant performance or control related failures.
- For take-off and landing, no combination of low visibility and crosswind likely to affect directional control.
- Second Officers are not permitted to conduct any circling or visual approaches except during Advance phase of LFUS B with a LTC.

Second Officers should aim to be stabilized at or above 1500ft AGL or FAF whichever is higher on all type of approaches.

The Captain must take control and carry out a go-around if any significant or sustained deviation from the stabilized criteria occurs below the company mandatory stabilization point as stated in section 8 of this Manual.

A new captain, who is either newly promoted or newly joined the company. For the first forty sectors, after being released to the line, they must not operate with a newly joined, First Officer or Second Officer.

- a new first officer is not permitted to fly with a new captain before completing first forty sectors, after being released to the line.
- a new second officer shall not be rostered to fly with Captains on probation who have done less than 100 sectors as PIC with HKEA.

5.2.7 Medical Certificate Renewals

Medical certificates are valid for 12 months, or 6 months if the pilot is over 60 years of age. Medical examinations may be taken at any time during the month in which they expire. If an Authorized Medical Examiner (AME) is used who is not a HKCAD assessor, appointments should be booked for the early part of the month to allow for processing of the relevant paper work. Manager Flight Operations Administration (MFOA) is responsible for booking medical appointments for renewal of the medical.

Pilots should inform the company immediately of the result of their medical examination.

5.2.8 Passport Renewals or Changes

A photocopy of the relevant pages of a new passport, or of any of the details on the existing passport which have changed, should be sent to the Crew Resources and Rostering . Pilots should continue to carry the old passport along with the new one for a period of at least one month to allow time for a revised crew list to be prepared.

5.2.9 Hong Kong Work Visas

Pilots who require a Hong Kong Work Visa are responsible for maintaining the validity of their visa. Any problems with visa renewal that are likely to affect a pilot's ability to perform his work duties, should be notified to the Crew Resources and Rostering section and the Human Resources Department. Any pilot who is unable to perform his work duties due to late visa renewal will be allocated leave for the period concerned.

5.2.10 Maximum Age

No flight crew member shall be assigned to flying duty after he attains the age of 60 years unless he is paired to a second flight crew member who has not attained the age of 60 years. No flight crew member shall be assigned to flying duty as a Commander or First Officer on or after he attains the age of 65.

5.2.11 Off Duty Flying Activities

Crew member may operate as a crew member of an aircraft for recreational flying or instructional duties when off duty provided it is an aircraft whose maximum total weight authorized does not exceed 1,600 kg and the purpose of the flight is not for public transport or aerial work.

Approval to operate aircraft other than stated above must be obtained from Director, Operations.

Crew member must inform the Company (Crew Operations) of all his off duty flight times and brief particulars of the nature of the functions performed by him in the course of his flight times for record purpose.

5.2.12 Flight Crew Records

The Assistant Manager Flight Operations Administration (AMFOA) is responsible for the maintenance of flight crew records. Procedures for the administration and maintenance of crew records are detailed in the Operations Services Manual.

The following flight crew records are to be kept for each individual flight crew in a filing cabinet under lock. Access only allowed by Flight Operations Administration Staff, Flight Management and the file owner:

- Licences and certificates
- Type(s) qualification
- Medical status

- Training records: initial training / line check / Proficiency Check / Recurrent training and check / CRM / Dangerous goods / Security / Engineering
- Special training / qualifications, e.g. All Weather Operations, RVSM, TCAS, etc.
- Recency / airport and route competency
- Training personnel qualification
- Right - Hand seat qualification
- Flight Time, Flight Duty Period
- Files belonging to no longer employed Flight Crews will be kept for 1 year and then will be disposed by shredding

5.2.13 Recording Flight Time

For the accreditation of Flight Time, Crew shall refer to CAD 54 Part 1 section 1.3.2.

5.3 Cabin Crew

Cabin Crew qualifications and requirements to conduct flying duties are specified in the Cabin Crew Operations Manual and Safety and Emergency Procedures Manual.

5.4 Training, Checking and Supervisory Personnel

Details of personnel having a training, checking function as well as qualification requirements are provided in the Pilot Training Manual OM (D).

5.5 Other Operations Personnel

All personnel assigned to, or directly involved in, ground and flight operations shall:

- be properly instructed,
- have demonstrated their abilities in their particular duties, and
- be aware of their responsibilities and the relationship of such duties to the operation as a whole.

Details of training for other operations personnel are provided in Operational Services Manual, Ground Operations Manual and Cargo Services Manual.

5.5.1 Flight Operations Officers

Refer to OSM Chapter 3.

Chapter 6 – Crew Health Precautions

6.1 General Crew Health Requirements

6.1.1 General

6.1.1.1 Statutory Requirements

No person may serve as a crew member knowing that he has a physical deficiency or mental condition that would render him unable to discharge his responsibilities to a safe standard or could endanger the safety of the aircraft or its occupants.

Crew members shall not undertake flying duties whilst under the influence of alcohol, narcotics, drugs, or any medicine that has not been approved by a qualified physician for use by crew members, e.g. sleeping tablets.

6.1.1.2 Company Policies on Problematic Use of Alcohol or Psychoactive Substances

The problematic use of alcohol or psychoactive substances is not compatible with flight crew and any operational personnel's duties and is strictly prohibited by the Company. Any flight crew / operational personnel who is identified as engaging in problematic use of alcohol or psychoactive substances will be immediately removed from safety critical functions.

Re-instatement to safety critical duties is possible after cessation of any problematic use of alcohol or psychoactive substances subject to a determination that continued duty is unlikely to jeopardize safety.

6.1.1.3 Illness or Incapacitation While on Duty

Any crew member who becomes ill or incapacitated while on flight duty or during a stop over at an outstation must report the matter to the Commander at the earliest opportunity.

The Commander must ensure that a doctor is called at the earliest opportunity to examine the crew member concerned. A certificate must be obtained stating whether the individual is fit for duty, or alternatively for travel.

- A written report must be submitted by the Commander and the crew member as soon as practicable after return to Hong Kong.

6.1.1.4 International Regulations

The Commander must report all cases of illness on board his aircraft (excluding cases of airsickness and accidents) on landing at an airport. The details are to be given in the appropriate part of the aircraft General Declaration. Cases of ill passengers disembarked during the flight must also be reported on arrival.

When a passenger on board shows symptoms which might indicate the presence of a major disease, the Commander of an arriving flight must ensure that the airport medical or health authority have been informed.

It is the responsibility of the airport medical or health authority to decide whether isolation of the aircraft, crew and passengers is necessary.

6.1.2 Alcohol and Other Intoxicating Liquor

Flight and cabin crew shall not consume alcohol in any form within 8 hours of commencing flight duty or standby, until the end of the flight duty or standby. Furthermore, no person shall fly or attempt to fly or act as a crew member while their ability to do so is impaired by alcohol, regardless of their compliance with the abstinence time periods above.

6.1.3 Medicines and Drugs

No person shall fly or attempt to fly or act as a crew member while their ability to do so is impaired by a drug.

No HKEA flight crew member will use non-prescribed medication prior to duty periods without a physician's advice.

All flight and cabin crew members must obtain the advice and recommendation of a qualified physician before taking any medication whether by prescription or “over the counter” that may affect their ability to safely perform their duties in any capacity.

Particular care as to side affects of the following general categories of drugs and medications should be discussed with a qualified physician:

- Antibiotics of any type;
- Antihistamine drugs in any form;
- Anti-malarial drugs;
- Sleeping tablets or solutions;
- Stimulants;
- Tranquillizers and sedatives.

6.1.4 Immunization

Medical advice is to be sought concerning the period to be observed before returning to flying duties following immunization.

All crew members are responsible for the validity of their vaccination certificates. All data concerning the period of validity of a vaccination are given in the respective document. All crew members shall present their vaccination certificates to the appropriate authorities when required to do so.

6.1.5 Scuba Diving

Flight and cabin crew members shall not fly within forty-eight (48) hours after scuba diving.

Flight Crew members will obtain approval from the General Manager Flying before participating in scuba diving activities.

6.1.6 Pregnancy

Crew members shall not be rostered to perform flying duties, starting from the end of the 12th week of pregnancy, or in accordance with HKCAD instructions. The Flight Operation Administration section and the HKCAD must be informed as soon as pregnancy has been confirmed.

6.1.7 Blood Donation

Flight Crew members may donate blood providing the following are complied with, or in compliance with recommendations made in writing by a qualified physician.

- Flight Crew will not donate blood within seven (7) days prior to any flying duty, except in the case of emergency and only if clearance is given by a physician.
- Flight Crew will not donate blood within twenty-one (21) days prior to any flying duty period requiring flight above 3,500 feet pressure altitude.

6.1.8 Meal Precautions Prior to, and During Flight

Since the most acute forms of food poisoning frequently come on suddenly, 1-6 hours after contaminated food is eaten, common sense rules should be observed as far as practicable in respect of meals taken within 6 hours of a flight.

Any food, which has been kept in relatively high ambient temperatures for several hours after preparation, should be regarded with extreme suspicion. This applies particularly to cream or pastry, which is commonly part of a set aircraft meal. The re-heating process usually used in aircraft for the main course of a meal rarely destroys food poisoning organisms and the toxins they produce. These toxins are tasteless and cause no unpleasant odours.

For any Crew member, before and during flight it is essential to avoid eating easily perishable foods as well as foods and drinks served cold. This is most important with milk and cream products, mayonnaise, sauces, salads, meat pies and other meat products.

In order to eliminate, as far as possible, the risk of food poisoning, the Captain and Co-pilot should not partake of the same dishes before or during a flight.

6.1.9 Surgical and Dental Operations

Aero-medical advice should be sought prior to returning to flying duties following any surgical operation.

Following local or general dental or other anaesthetics, a minimum time of forty-eight (48) hours should elapse before resumption of flying duties, unless advised otherwise by qualified medical personnel.

6.1.10 Vision Correction

All flight crew members who are required to wear corrective lenses in order to satisfy visual requirements laid down for granting of licences, are required to carry a spare pair of spectacles with them on all occasions whilst operating.

Spectacles, either corrective or anti-glare, when worn by flight crew during flight should be of a type of frame that allows maximum peripheral vision. The examination for the prescription of a spectacle correction should ideally be carried out by an examiner with some understanding of the problems of vision in aviation.

- Near Vision Correction

  Where the only correction necessary is for reading, pilots should never use full lens spectacles while flying. Half moon spectacles or lower segment lenses with a neutral upper segment should be used in these circumstances.

- Near and Distant Vision Correction

  Where correction for both near and distant vision is required, bifocal-type lenses are essential. Where triple correction is necessary for reading, instrument panel range and distant vision, then specialist advice is required.

6.1.11 Humidity

The relative humidity of cabin air is much lower in flight than that to which crew members are normally accustomed.

Coffee, and especially black coffee, being a diuretic (Kidney Stimulant) can exacerbate the effects of reduced humidity. Symptoms resulting from low humidity are dryness of the nose, mouth and throat and general tiredness.

6.2 Cosmic Radiation

HKEA has a programme that records the total dosage of cosmic radiation to which the crew are exposed together with the names of that crew.

Where the record indicates that a crew member may achieve exposure of more than 4mSv in any 12 month calendar period, then that crew member will be rostered accordingly to ensure that his annual exposure does not exceed 6mSv.

6.3 Tropical Climate

6.3.1 Tropical Climate

The climate in the South East Asian tropical zone is basically hot and humid, with high day and night temperatures and humidity around 90%.

These very hot and humid conditions can be very tiring and tend to reduce working intensity. When the surrounding temperatures are higher than those of the body, the defence mechanism of the body gives off heat in the form of perspiration. To counteract such perspiration, liquid and salt intake needs to be increased.

6.3.2 Hygiene

Particular care should be taken regarding hygiene in hot countries.

- Drinking Water - Supply of pure drinking water is the exception in tropical and sub-tropical areas. Water from the tap must be regarded as infected, even when it is merely used for brushing the teeth. A guiding principle should be not to drink any water that is not purified by boiling, or by chemical disinfecting (chlorinating). The common infections dealing with water are typhoid fever, paratyphoid fever, and dysentery.
- Milk - Un-boiled milk can be a source of infection.
- Recommended drinks - Boiled drinks and beverages in bottles. Crew members should ensure that bottles are opened in their presence.
- Ice - Ice is very often contaminated and should not be used in drinks.

- Fruit - Use fruit that can be peeled and, where possible, avoid raw fruit without peel. Safe fruits: oranges, bananas, mangoes, pineapples, etc. Wash fruit before peeling, and also wash grapes before eating.
- Salads and Raw Vegetables - Eating salads or raw vegetables runs the risk of worm infestation or of contracting amoebic dysentery.
- Meats - Eat only fresh meat that has been freshly cooked. Avoid raw or cold meats.
- Fish - Eat only fresh fish freshly cooked. Avoid shellfish, especially oysters.
- Bathing - Use only purified pools or open sea. Fungus diseases are common in hot humid climates. When bathing, it is advisable to plug your ears with cotton wool to prevent fungus infection of ear canals. Also wear shoes at pool side to avoid fungus infection of the feet.

6.3.3 Tropical Diseases

Tropical diseases are not confined entirely to the tropics but can occur almost anywhere. However, their incidence and frequency are influenced by local factors. Tropical diseases are mainly transmitted in the following ways:

- Through insect stings or bites
- Through healthy skin by other parasites
- Through food and drink
- From the ground
- Person to person

In SE Asia, mosquitoes are the main transmitters of diseases such as Malaria and Dengue Fever. Initial protection of the skin is by use of an insect repellent.

Fungus diseases are also problematic in SE Asia, Fungus being present in inland waterways, shallow rivers and lakes, but not normally in sea water. Protective measures include bathing only in pools with purified water or in the sea, and wearing shoes around swimming pools.

The following is a list of main tropical diseases:

Amoebiasis (Amoebic Dysentery)

- Causative Parasite - Amoebiasis is due to the ingestion of a unicellular parasite, the Entamoeba Histolytica. This is followed by an infection of the intestinal tract.
- Distribution - Although most prevalent as an endemic disease of tropical and sub-tropical countries, unsanitary disposal of excreta and primitive methods of water purification may result in its introduction into temperate zones.
- Source of Infection - Water polluted by infected faeces is the commonest source of infection, hence the prophylactic importance of safe drinking water. Other sources of infection are, foods grown on soils manured by infected excreta, flies and food handlers.
- Clinical features - Clinically the disease is characterised by an insidious onset, frequent febrile relapses and a tendency to chronicity. Diarrhoea is the outstanding symptom, but it may be absent. There is abdominal pain with blood and mucus in the stools.

- Complications - Inflammation of the liver; liver abscesses; inflammation of the gall bladder and bile ducts.
- Treatment - Consists in rest, diet and a course of therapy, which varies with the type of case.
- Prophylaxis - No vaccination or inoculation is available, nor is there any chemical prophylaxis such as is used to prevent Malaria. General hygiene measures should be followed.

Malaria

- Transmission - Infection takes place through the bite of an infected anopheles mosquito and transmission of the parasite into the human blood stream.
- Geographical distribution - Variable, consult a qualified physician.
- Incubation period - The incubation period usually ranges from 10 to 35 days.
- Morbidity - Malaria causes several million deaths each year.
- Symptoms - An acute, sometimes chronic, often recurrent, febrile disease characterised by periodic paroxysms of chills followed by high fever and sweating due to the presence of parasites in blood. The early stage of the illness can very easily be confused with many other infectious diseases, the more so if this occurs after return to a temperate region where the possibility of Malaria may not be considered.
- Prophylaxis - Preventive measures include use of insect repellent sprays to protect skin, screens on doors and windows, mosquito netting in bedrooms, sufficient clothing to cover as much of the skin surface as possible against mosquito bites (this is important after sundown). It is not possible to produce permanent immunity either chemically or by the use of vaccines. Therefore chemical prophylactic drugs are only effective as long as they are taken regularly.
- Treatment - Malaria can be fatal if treatment is delayed. Therefore after having been in a malarial area, if a crew member feels unwell or has an unusual temperature within four weeks of leaving the area, advice should be sought from a qualified physician.

Typhoid and Paratyphoid Fevers

- These are ingestion diseases characterised by high fever and intestinal symptoms.
- Transmission - Typhoid fever is conveyed by water contaminated by sewage; by articles of food grown in or gathered from water, e.g. shellfish and watercress; or by dairy or cooking utensils washed in such water. Paratyphoid fever is rarely water borne; recorded epidemics are few. The disease is usually disseminated by foodstuffs contaminated by carriers.
- Incubation Time - From seven to twenty-one days.
- Geographical Incidence - The disease is likely to occur wherever the water supply is impure. Generally speaking the less satisfactory the sanitation and more prevalent is enteric fever. However, with the use of adequate drugs, cases of death are now rare.
- Symptoms - Vague symptoms of illness tending to increase in severity throughout the first week. Lassitude, frontal headache, general aches

and pains, disturbed sleep, anorexia and thirst, abdominal discomfort, temperature rising to 40°C, diarrhoea with or without bleeding.

- Precautions - Strict hygiene of food and drink.
- Prophylaxis - Is by inoculation. The inoculation is not an international requirement for entry into any country. Inoculation is strongly recommended when travelling to regions of poor general hygiene.

Note: *Aircrew should not fly within 48 hours after inoculation. Inoculation may be followed by a slight general feverish reaction.*

Cholera

- Geographical distribution - Outbreaks of the disease usually are explosive and limited. Cholera is endemic in many areas of Asia.
- Transmission - Cholera is spread by the ingestion of water and foods contaminated by the excrement of patients.
- Incubation period - Is short, usually 1 to 6 days.
- Symptoms - Sudden onset. Initial symptoms are nausea, vomiting and diarrhoea, with variable degrees of fever and abdominal pain. If diarrhoea is severe, the resultant dehydration may lead to intense thirst, muscle cramps and weakness.
- Prognosis - In many cases the outlook depends largely on early and adequate therapy.
- Prophylaxis - Strict hygiene of food and drink. In many countries cholera has been controlled by the purification of water supplies, proper disposal of human excrement.

Dysentery

- Definition - An acute infection of the bowel, characterised by frequent passage of stools accompanied by abdominal cramps, malaise and fever.
- Incidence - Incidence is world-wide, but is particularly common in hot climates.
- Source of Infection - The source of infection is the excreta of infected individuals. Organisms are spread from individual to individual by the direct faecal-oral route. Indirect spread by contaminated food and inanimate objects is common, but water borne disease is rare. Flies serve as carriers.
- Epidemics occur most frequently in overcrowded populations with inadequate sanitation. It is particularly common in younger children living in endemic areas, whereas adults of these regions are relatively resistant to infection and usually have less severe disease.
- Incubation period - Very short, some hours to a few days.
- Symptoms - Depend on severity. May have painful colic diarrhoea, raised temperature and vomiting. The disease usually shows great individual variation.
- Prophylaxis - There is no effective inoculation. Strict hygiene of food and drink.
- Treatment - There are many effective medicines for disinfection of the gastro-intestinal tract which can be prescribed by a qualified physician.

6.4 Notification of Illness, Injury or Pregnancy by Flight Crew

All holders of a medical certificate issued under the Air Navigation (Hong Kong) Order 1995 of the statutory requirement is to inform the Director-General of Civil Aviation in writing of injury, illness or pregnancy, as soon as possible in the case of injury or pregnancy, and as soon as the period of 20 days has elapsed in the case of illness; and that the medical certificate shall be deemed to be suspended upon the occurrence of such period of illness or the confirmation of the pregnancy. The company shall be copied in on such communication/s to fulfil the record keeping and roster obligation through a message to the office of the GMF.

The notification should be on the Notification of Illness or Injury or Pregnancy by Flight Crew (Please see attachment A for sample). The notification form should be sealed in an envelope marked as confidential and posted to the address provided on the form.

In the case of injury or illness, the suspension shall cease after the following:

(1) The medical certificate holder is medically examined and cleared fit, with the examiner issuing a letter that the flight crew is fit to return to duty.

(2) This letter is forwarded to the CAD.

(3) A CAD Approved Medical Assessor accepts the findings and releases the crew as fit to resume their function as a member of the flight crew. (This process may take up to 7 days)

In the case of pregnancy, the suspension may be lifted by the Director-General of Civil Aviation for such a period under certain conditions as he thinks fit.

At the end of the pregnancy the holder will be required to follow the procedure above before she is fit to resume her function as a member of the flight crew.

6.4.1 Form - Notification Unfitness by Flight Crew

Notification of Illness or Injury or Pregnancy by Flight Crew

To: Director-General of Civil Aviation
Flight Standards and Airworthiness Division
Civil Aviation Department
10/F., Commercial Building
Airport Freight Forwarding Centre
2 Chun Wan Road
Lantau
Hong Kong

(Attention: Personnel Licensing Officer)

From: ________________________________(full name of licence/medical certificate holder)
(in Block Capitals)
____(type and number of licence)

Notification Message:

In accordance with the Air Navigation (Hong Kong) Order 1995, I hereby notify you of the following (please tick as appropriate):

- ☐ I suffer a personal injury, which occurred on ________________(date), involving incapacity to undertake my functions as a member of the flight crew; or
- ☐ I suffer an illness, which started on ________________(date), involving incapacity to undertake my functions as a member of the flight crew throughout a period of 20 days or more; or
- ☐ I have reason to believe that I am pregnant.

My contact details are as follows:

Correspondence address: ____
____

Email address: ____

Telephone (home): ________________ Mobile: ________________ Fax: ________________

Signature: ________________________ Date:

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Chapter 7 – Approved Flight Time Limitations Scheme

7.1 Terminology

For the purpose of this section, the various terms used have the meanings defined below ascribed to them.

- Acclimatised

  If a flight crew member ends a duty period at a place where local time differs by more than 3 hours from his home base he shall straight away be considered as “unacclimatised” for the purposes of an operator's approved Scheme.

  An “unacclimatised” crew member will become “acclimatised” again if he returns to his home base no more than 48 hours after the start of a duty period or duty cycle which commenced at his home base;

  OR

  A Flight Crew member returns to home base time zone more than 48 hours after the start of the last duty period which took him away from his home base time zone, and he has completed a recovery period in accordance with “Physiological Rest”;

  OR

  A Cabin Crew member returns to his base time zone more than 48 hours after the start of the last duty period which took him away from his home base time zone, and then has 3 consecutive local nights free of duty within a time zone band which is 3 hours wide.

- Augmented Crew

  The boarding of extra Flight Crew members for the purpose of providing relief at the controls.

- Cabin Crew

  In relation to an aircraft means a person on a flight for the purpose of performing in the interest of the safety of the passengers, duties to be assigned by the company or Commander of the aircraft, but who shall not act as a member of the Flight Crew.

- Dispatch Crew

  A fully qualified and current Flight Crew / Cabin Crew authorized to carry out pre-flight duties as defined by a company.

- Domestic day off (DDO)

  A period at home base available for leisure and relaxation and free of all duties. A single DDO shall comprise a minimum of 34 continuous hours and include two local nights. Additional consecutive DDOs must be of at least 24 hours duration and shall include a further local night for each additional DDO. A Rest Period may be included as part of a DDO.

- Duty cycle - Flight Crew

  A series of duty periods undertaken between DDOs.

- Duty cycle - Cabin Crew

  A series of duty periods undertaken between “Days off”.

- Duty & duty period

Any continuous period during which a crew member is required to carry out any task associated with the business of the company. It includes any flight duty period, positioning, ground training, ground duties and standby.

- Extended break (EXB)

  A period away from home base, normally in accommodation provided by the company, during which the Crew Member is free of all duties. An EXB shall comprise a minimum of 30 continuous hours where suitable accommodation is available. A rest period may form part of an EXB.

- Fatigue Risk Management System (FRMS)

  FRMS is a scientifically based system to manage transient and cumulative fatigue, which will provide an equivalent level of safety as a component of a prescriptive FTL system, or may form the basis of an alternate FTL system.

- Flight crew

  In relation to an aircraft means those members of the crew of the aircraft who undertake to act as Pilot or Flight Engineer.

- Flight duty period (FDP)

  Any time during which a person operates in an aircraft as a member of its Crew. It starts when the Crew Member is required by the company to report for a flight. It finishes at on-chocks, or when a crew member last vacates a control seat and is free from all flight duty for the remainder of the flight, whichever is earlier.

- Home base

  The place nominated by the company to the crew member, or otherwise contractually agreed between them, from where the crew member normally starts and ends a rostered/planned duty and at which place, under normal conditions, the company is not responsible for the accommodation of the Crew member concerned.

- Late night period (LNP)

  The period 0100 to 0659 hours home base time to which a Crew Member is acclimatised.

- Local night

  A period of 8 hours falling between 2200 hours and 0800 hours local time.

- Long Range Operations (LRO)

  An operation by a Two Crew Aircraft that includes a Sector with a Scheduled Sector Time greater than 10 hours but not greater than 16 hours.

- Night

  The time between half an hour after sunset and half an hour before sunrise.

- Physiological Rest

  The rostering of rest periods in accordance with Section 7.16.3 and Section 7.25.3.

- Positioning

The practice of transferring Crews from place to place as passengers in surface or air transport at the behest of the company.

- Recovery period

  A period free of duty following a duty cycle of length greater than 48 hours during which the crew member became unacclimatised. A rest period and DDO(s) may form part of a recovery period.

- Reporting time

  The time at which a crew member is required to report for duty, as per Section 7.7.

- Rest

  The word rest shall be taken as meaning repose or sleep.

- Rest period

  A period of time before starting a FDP which is designed to give crew members adequate opportunity to rest before a flight.

- Rostered / planned duty

  A duty period, or series of duty periods, with stipulated start and finish times, notified by the company to crew members in advance. These may comprise or form part of a duty cycle.

- Rostered period

  The rostering period is one calendar month.

- Scheduled

  “Scheduled' is an intended future plan of what is intended to happen.

- Sector and Sector time

  The time between when an aircraft first moves from its parking position until it next comes to rest, after takeoff and landing, on the designated parking position.

- Service disruption

  Unforeseen circumstances which occur during operations after the commencement of a FDP.

- Sleep opportunity

  A period which provides the opportunity to take at least 8 consecutive hours of horizontal rest in suitable accommodation.

- Split duty

  A flying duty period which consists of two or more sectors, separated by a period of rest which is less than a minimum rest period.

- Standby duty

  A period during which the company places constraints on a Crew Member that would otherwise be off duty.

- Standard Operations (STO)

  An operation other than a Long Range Operation or an Ultra Long Range operation.

- Suitable accommodation

  A well furnished bedroom which is subject to minimum noise, is well ventilated, and has the facility to control the levels of light and temperature.

- Travelling

  All time spent by a crew member transiting between the place of rest, and the place of reporting for duty.
- Two Crew Aircraft

  A fixed wing aircraft certificated to be flown by a minimum Flight Crew of two pilots.
- Three Crew Aircraft

  A fixed wing aircraft certificated to be flown by a minimum Flight Crew of two Pilots and a Flight Engineer, or three Pilots.
- Ultra Long Range Operations (ULR)

  An operation by Two Crew Aircraft that includes a Sector with a Scheduled Sector Time greater than 16 hours, and where four Pilots are boarded so that in flight relief can be provided.
- Unacclimatised

  Not acclimatised.
- Unforeseen Circumstances

  Any and all factors; physical or otherwise, as such that could have an impact on the course of the final outcome, of which at the time of formulating a decision a decision cannot be reasonably predicted or forecasted.
- Week

  A period of seven consecutive days starting at any set time and on any set day as specified and stated by the company.
- Window of circadian low (WOCL)

  The period 0200-0559 individual body clock time.

7.2 Flight And Duty Time Limitations And Rest Requirements

7.2.1 Legal Background

Part VI of the Air Navigation (Hong Kong) Order 1995 [the Order] comprises Articles 53 to 56 and addresses the Fatigue of Crew. Operators and crew members are expected to be aware of the provisions of this legislation and their responsibilities under it.

In general terms the legislation is applicable to the operator and crew of an aircraft registered in Hong Kong which is either:

- Engaged on a flight for the purpose of public transport; or
- Operated by an air transport undertaking.

The operator of an aircraft operated for the purposes listed above, has presented to the Director General of Civil Aviation (DGCA), for his approval, a scheme for the regulation of the flight times of its crews (FTL Scheme). This scheme, now approved by the DGCA, and published below, is thus readily available to every person employed by the company as a member of an aircraft crew. In addition the company will take all reasonable steps to ensure that the provisions of this FTL Scheme are complied with.

This approved FTL Scheme applies to all operating crew members on board company aircraft and not merely those carried to meet the minimum crew requirements set out in Part V of the Order.

Since the legislation requires operators to include in their FTL Scheme provisions for all crews members carried, this includes, apart from Flight Crew and Cabin Crew, Crew Members boarded for special purposes, such as load masters. While many of the standard provisions in this document may not sensibly apply to such Crew Members, a common sense approach should be taken of their duty and rest periods. If their duties have a direct bearing on the safety of the operation, or if the Aircraft Commander assigns them duties in the interest of the safety of any passengers, provisions similar to those relating to Cabin Crew should be included in the FTL Scheme.

Holders of an Air Operator's Certificate utilising leased foreign registered aircraft will be directed under the provisions of Article 93 of the order to comply with the requirements of the Order with respect to flight and duty time limitations.

Much of the test of this publication is presented in the third person singular. For conciseness, the pronoun “he” is used throughout. “She” should be substituted where appropriate.

7.3 Objectives Of Approved FTL Schemes

The Objectives of a FTL Scheme are to ensure that Crew Members are adequately rested at the beginning of each flight duty period (FDP), and that the duration and timing of individual duty periods will enable them to operate to a satisfactory level of efficiency and safety in all normal and abnormal situations.

The standard provisions set out in this document are therefore concerned solely with the prevention of fatigue and the maintenance of vigilance in flight. They are not intended to take account of commercial circumstances (including Crew Member basing), social considerations or lifestyle.

Interpretation of the standard provisions contained in this document or of any variations to an operator's Approved Flight Time Limitations Scheme (AFTLS) lies with the DGCA.

7.4 Responsibilities Of Operators

HKEA is required by law to take all reasonable steps to ensure that the provisions of the approved Flight Time Limitation Scheme are complied with.

The responsibility for making decisions concerning the interpretation and application of HKEA approved Flight Time Limitation Scheme, and for the processing of Commander's Discretion Reports is vested by the Director, Operations (DO) and General Manager Flying (GMF).

In the absence of both the DO and GMF, the Flight Standards Manager (FSM) and the Training Manager (TM) are the only persons authorized to make immediate decisions on questions relating to this scheme.

HKEA must ensure that all personnel involved in the application of the approved FTL Scheme appreciate the relationship between the frequency and pattern of rostered flight duty periods, rest periods and days off and that due consideration is given to the cumulative effects of working long hours interspersed with minimum rest periods. Comprehensive guidance and instructions are included in the Operations Manual OM (A) and Operations Services Manual (OSM), for the benefit of all staff concerned with the preparation and day-to-day management of rostering and scheduling. This includes instructions on rostering practices and guidance on the physiological effects of disturbing circadian rhythms, extensive transmeridian flight, sleep deprivation and sleep disruption.

All Crew shall be provided on induction, and periodically thereafter, with instruction on sleep strategy, fatigue management and fatigue counter measures, and where appropriate, on the physiological effects of extensive transmeridian flights and disturbing circadian rhythms. The distinction should be drawn between normal tiredness resulting from the physical and mental efforts of flight, and cumulative fatigue resulting from the interaction of sleep loss and circadian disruption which can lead to significant decreases in operational performance.

HKEA must ensure that all Crew rosters include sufficient physiological rest so as to avoid the onset of Crew fatigue.

HKEA must ensure that planned schedules allow for flights to be completed within the maximum permitted flight duty period. The Civil Aviation Department (CAD), when assessing the planning of a schedule will take into account the time allowed for pre-flight duties, taxiing, the flight and turn-round times. However, it is recognized that on occasions a planned flight will experience unforeseen delays. Under these conditions HKEA may request the Aircraft Commander to extend a FDP or, exceptionally, to reduce a rest period. Whilst HKEA may only request the aircraft Commander to exercise his discretion in the event of a service disruption, this does not preclude the Commander from individually exercising his discretion at other times.

Factors to be considered when constructing Crew rosters should include:

- The undesirability of alternating day/night duties.
- Avoiding scheduling rest periods of between 18-30 hours, except when rest is physiologically based.
- The effect of consecutive flight through, or ending within, the window of circadian low.
- The notification of crews well in advance of days off.

Regular communications will be held between the company, normally the General Manager Operations Control, and crews to discuss basic roster concepts and the overall application of the provisions of the company approved FTL Scheme.

It is the responsibility of the company to prepare duty rosters sufficiently in advance to provide the opportunity for crews to plan adequate pre-duty rest. HKEA must establish minimum periods of notification of duty for operating crews, and where this is not practicable due to the nature of the operation, must establish in advance minimum periods of notification of days off, during which a crew member will not be required for any duties.

HKEA must provide accommodation for crew members when away from home base which allows the Crew Member the opportunity to obtain adequate pre-flight rest.

7.5 Responsibilities Of Crew Members

Responsibility for preventing the onset of fatigue cannot rest on the Company alone.

The formal responsibilities of Crew Members are set out in Articles 55 and 56 of the Air Navigation (Hong Kong) Order, and crew members are expected to be familiar with these provisions. In general terms they prohibit a person acting as a crew member if he knows, or suspects that he is suffering from, or having regard to the circumstances of the flight to be undertaken, is likely to suffer from fatigue as may endanger the safety of the aircraft. They are not intended to cover instances where normal tiredness resulting from the physical and mental efforts of flying duty is likely.

A Crew Member is also required to ensure that the company is aware of his flight times including any free lance flight times during the preceding 28 days. Other provisions of the Articles set out the maximum number of flying hours which may be flown in any 28 day and 12 month period.

Individual Crew Members shall ensure that they are not in breach of their company's approved FTL scheme.

All crew members shall make optimum use of the opportunities and facilities for rest provided, and plan and use their rest periods properly. Crew members must recognize that the responsibility for being sufficiently rested before undertaking a flying duty remains entirely with the individual.

No person shall act as a member of the Crew of an Aircraft registered in Hong Kong or of a foreign registered leased aircraft to which the company's scheme applies, if the individuals know, or suspect, that their physical or mental condition renders them temporarily unfit so to act.

Travelling time, from home to departure aerodrome, is a factor influencing any subsequent onset of fatigue. If the journey time from home to the departure aerodrome is in excess of 1 $^{1}/_{2}$ hours, crew members should consider making arrangements for 'suitable accommodation' to be within 1 $^{1}/_{2}$ hours of the departure aerodrome.

7.6 Variations To The Standard Provisions

While HKEA is required to construct the schemes in accordance with the standard provisions, it is recognized that these provisions will not necessarily interact sensibly with every type of operation. In such circumstances the airline may apply to incorporate variations from the standard provisions in their FTL Scheme. Approval to do so will only be given where they can show that, despite the variation, the overall level of protection against fatigue will, at least, be equivalent to that provided by the standard provision.

HKEA when requesting permanent incorporation into the scheme of any significant variation from the standard provisions must consult with their crews or crews' representatives regarding the implementation of the variation(s). If no consensus is reached in this consultation then both parties shall report their respective positions to the CAD who will make the final decision.

HKEA may from time to time apply for temporary variations from AFTLS which may be applicable only to a certain aircraft fleet, schedule, route, flights or "one off" flight. However as for permanent variations there must be documented confirmation of the temporary variation. Temporary variations should normally be valid for a period not exceeding 6 months, after which, any further extension should be in the form of a permanent variation.

7.7 Reporting Times And Finishing Times

Reporting places and times are specified by HKEA. The reporting times must realistically take account of all pre-flight preparation duties and should not be less than 60 minutes before departure, except where a dispatch Crew is utilized. pre-flight duties are part of the FDP but immediate post-flight duties are not. The FDP commences as specified by the company and ends when the aircraft is "on chocks". However, a duty period must allow for post-flight activities which normally should not be less than 30 minutes. The time spent between arrival at the reporting place and the completion of post-flight duties normally determines the length of the Duty Period and, hence, the length of the subsequent rest period. However, if the time between arrival at the airport terminal and arrival at the reporting place, or vice versa, is repetitively delayed due to airport procedures (e.g. immigration, customs and security), this must be brought to the attention of the company and the company shall action accordingly.

If a specific operation requires the Cabin Crew to report before the Flight Crew, then the difference between the report times shall be limited to 20 minutes. However in this event the Cabin Crew's "Local Time of Start", associated FDP, and subsequent rest period shall be in accordance with the Flight Crew' local time of start, FDP and subsequent rest period requirements. The Cabin Crew's additional report time shall however be included in the Cabin Crew's overall total of duty hours.

The Reporting time of HKE Crew:

- One hour and fifteen minutes at home base before a normal flight.
- One hour and fifteen minutes at home base as a Safety Pilot.
- One hour at all outports before a normal flight, training flight and Line Check.
- One and a half hour before commencement of a training flight and Line Check at home base.
- Forty five minutes before commencement of a positioning flight on company aircraft as a crew member
- One and a half hour before commencement of positioning flights, in cases other than those covered above.
- Thirty minutes before commencement of a flight dispatched by a dispatch crew.
- One and thirty minutes before commencement of an EDTO flight (home base and outport).

Reporting times may be adjusted by prior notification to cover exceptional circumstances. Report periods however will not be reduced.

7.8 Delayed Reporting Time

7.8.1 When a Crew Member is informed of a delay to the reporting time of less than 4 hours, before leaving the place of rest, the maximum FDP shall be based on the more limiting time band of the scheduled and the actual report time and shall start at the actual report time.

7.8.2 However, when a Crew Member is informed of a delay of 4 hours or more, before leaving the place of rest, the maximum FDP shall be based on the actual report time and shall start at the actual report time.

7.8.3 In the event of a second or any subsequent delays, the maximum FDP and FDP start time, will both remain unchanged from the FDP and FDP start time calculated under paragraphs Section 7.8.1 or Section 7.8.2

7.8.4 When an operator informs a Crew Member before leaving the place of rest of a delay in reporting time of 10 hours or more ahead and that crew member is not further disturbed by the operator until a mutually agreed hour, then that elapsed time is classed as a rest period. If, upon the resumption of duty, further delays occur then the appropriate criteria in this section and Section 7.8.1 Section 7.8.2 and Section 7.8.3 above shall be applied to the rescheduled reporting time.

7.9 Standard Operations

Standard Flight Duty Period - Acclimatised Flight Crew

Table A below shall be used to determine the Standard FDP for acclimatised Flight Crew of two and three Crew Aircraft.

Table A - Standard FDP for acclimatised Flight Crew

Local time of start	SECTORS							
	1	2	3	4	5	6	7	8 or more
0700-0759	13	12¼	11½	10¾	10	9¼	9	9
0800-1259	14	13¼	12½	11¾	11	10¼	9½	9
1300-1759	13	12¼	11½	10¾	10	9¼	9	9
1800-2159	12	11¼	10½	9¾	9	9	9	9
2200-0659	11	10¼	9½	9	9	9	9	9

Note: *If the scheduled FDP for a two Crew Aircraft includes:*

(i) a scheduled sector length in excess of 9 hours, or

(ii) two or more scheduled sectors and the combined scheduled sector time exceeds 8 $^{1}/_{2}$ hours and one of the scheduled sectors encroaches on the period 0200-0559 at the local time where the FDP commenced.

One additional Pilot must be boarded, as per Section 7.9.1

When a third Pilot is boarded a comfortable reclining seat or a bunk shall be provided for the Flight Crew member not at the controls.

Note: *If the preceding FDP was extended due to service disruption, the minimum rest period may be reduced, provided that the subsequent allowable FDP is also reduced by the same amount.*

Standard Flight Duty Period - Unacclimatised Flight Crew

Table B shall be used to determine the FDP for unacclimatised Flight Crew of two and three Crew Aircraft.

Table 7-1: Table B - Standard FDP for unacclimatised Flight Crew

Length of preceding rest (hours)	SECTORS						
	1	2	3	4	5	6	7
Up to 18	13	12¼	11½	10¾	10	9¼	9
Between 18 and 30	11½	11	10½	9¾	9	9	9
Over 30	13	12¼	11½	10¾	10	9¼	9

Note: *1: if the scheduled FDP for a two Crew Aircraft includes:*

(i) a scheduled sector length in excess of 9 hours, and the FDP starts within 9 hours of the end of a sleep opportunity in accordance with Section 7.16.3.1, or Section 7.16.3.3

(ii) a scheduled sector length in excess of $8^{1}/_{2}$ hours, and the FDP starts 9 or more hours after the end of a sleep opportunity in accordance with Section 7.16.3.1 or Section 7.16.3.3

(iii) two or more scheduled sectors and the combined scheduled sector time exceeds 8 $^{1}/_{2}$ hours and the FDP commences 9 hours or more after the end of a sleep opportunity in accordance with Section 7.16.3.1, or Section 7.16.3.3

One additional pilot must be boarded, as per Section 7.9.1

When a third pilot is boarded a comfortable reclining seat shall be provided for the Flight Crew member not at the controls.

Note: *2: If the preceding FDP was extended due to service disruption, the minimum rest period may be reduced, provided that the subsequent allowable FDP is also reduced by the same amount.*

7.9.1 Extended Flight Duty Period For Standard Operations

7.9.1.1 Use Of Flight Crew Relief And Flight Crew Inflight Relief Facilities

When augmented Flight Crews are boarded, the FDP may be extended as follows:

(i) A total of in-flight rest of less than three hours does not allow for the extension of a Standard FDP, but where the total in-flight rest, which needs not be continuous, is three hours or more, then the Flight Crew member permitted Standard FDP may be extended as follows:

- When only a seat is available
- A period equal to 1/3 the total in flight rest; provided that the maximum FDP permissible shall be 15 hours

(ii) No Flight Crew Member may spend more than 8 consecutive hours at the controls without being relieved of all flight duty for at least one hour, or a total of more than 10 hours at the controls within a FDP. For the purposed of this sub-paragraph “at the controls” includes brief absences from the controls for physiological and/ or duty reasons.

(iii) When calculating the period of in-flight relief, the maximum period on any flight cannot be greater than the actual block time less one hour. Scheduled ground transit time may not be taken into consideration.

(iv) If, on the day, extended unscheduled ground time occurs (such as a technical delay before departure or in transit) then, subject to the conditions set out in Section 7.9.1.2.2, rest taken on board the aircraft on the ground may count as in-flight rest at the appropriate seat or bunk rate, as the case may be.

(v) Where a Flight Crew Member undertakes a period of in-flight relief and after its completion is wholly free of all flight duty for the remainder of the flight, then that part of the flight following completion of all flight duty shall be classed as positioning and be subject to the controls on positioning detailed in Section 7.13

7.9.1.2 Use Of Split Duty

7.9.1.2.1 When an FDP consists of two or more sectors but separated by a period of consecutive hours of rest that is less than a minimum rest period (Split Duty), then the FDP may be extended by the amounts indicated below.

Period of Consecutive Hours of Rest	Maximum Extension of the FEP
Less than 3	NIL
3-10	A period equal to half the hours of consecutive rest taken

(i) The portion of the FDP either side of the period of rest must not exceed 10 hours and no FDP utilizing the provision of split-duty may exceed 18 hours.

(ii) Split duty may not be used to extend a FDP already extended by the use of an augmented crew.

(iii) The period of rest shall not include the time required for intervening post and pre-flight duties nor travel time to and from the place where rest is taken.

(iv) When the period of rest is 6 hours or less it will suffice if a quiet and comfortable place, not open to the public, is available, If the period of rest is more than 6 hours, or covers 3 hours or more of the period 2200-0800 local time at the place where it occurs, then suitable accommodation must be provided. Where security considerations make the latter requirement inadvisable the provision of suitable accommodation may be waived.

7.9.1.2.2 Only under the following conditions may a period of rest within a split-duty be taken in an aircraft on the ground.

(i) The period of rest is 6 hours or less, or the requirement for suitable accommodation is waived in accordance with security considerations.

(ii) A comfortable reclining seat, or bunk, must be available for each resting crew member.

(iii) There must be no passengers on board.

(iv) There must be no cargo loading or unloading during the period of rest.

(v) Maintenance must not take place within the vicinity of resting Crew Members.

(vi) The Crews must have adequate control of the temperature, lighting and ventilation.

7.10 Late Finishes / Early Starts

7.10.1 These provisions:

(1) Apply to acclimatised Flight Crew only.

(2) Apply when a duty cycle contains a FDP which is preceded by one or more duty periods any part of which falls within the LNP.

(3) Do not apply if all the duties within the duty cycle are ground duties, or to ground duties following FDP(s) where the former end the duty cycle.

(4) Do not apply to FDP's which are delayed into the LNP by service disruption.

(5) Do not apply to standby duty when undertaken at home, or in suitable accommodation provided by the operator.

7.10.2 Duties may not be undertaken that occur in more than 3 consecutive LNP's, nor may there be more than 4 such duties in any 6 consecutive LNP's , except under the provision of Section 7.10.6 below.

7.10.3 When a Crew Member is occupying suitable accommodation provided by the operator, and the normal journey time from that accommodation to the reporting point does not exceed 15 minutes, then for the purposes of defining the LNP, 0559 may be subtitled for 0659.

7.10.4 When a Crew Member is scheduled for consecutive FDPs which encroach upon consecutive LNPs, the crew member must receive a rest period, in accordance with Section 7.10.2 (acclimatised Crew Member) or a sleep opportunity in accordance with Section 7.10.3 (unacclimatised Crew Member), immediately prior to the first of these consecutive FDPs.

7.10.5 If duties occur on either 3 consecutive LNP's, or more than 3 LNP's within 6 consecutive LNP's then the subsequent rostered period free of duty must be of at least 48 hours duration and include two local nights.

7.10.6 Crew Members employed on regular “overnight” duties may, subject to the following conditions, operate a block of 5 FDP's on up to 5 consecutive LNP's which encroach upon the LNP:

(1) The minimum rest period before the start of such a series of duties shall be 36 hours.

(2) The FDP must not exceed 8 hours, irrespective of the sectors flown.

(3) At the finish of such a series of duties Crew Members must have a minimum of 63 hours free from all duties.

7.11 Mixed Duties

7.11.1 General

When a Crew Member is required to report for duty in advance of the stipulated report time for a scheduled flight, to carry out a task at the behest of an employer, then the time spent on that task shall be part of the subsequent FDP.

7.11.2 Mixed Simulator And Aircraft Flying

When a Flight Crew Member occupies a control seat in a simulator or conducts tests or training in a simulator, and then within the same duty period operates as a Crew Member on a public transport flight, the time spent in the simulator shall be counted as a sector and counted in full towards the subsequent FDP. The allowable FDP is calculated from the report time of the simulator detail.

7.12 Travelling Time

Travelling time, other than that time spent on positioning, shall not be counted as duty

When Crew Members are required to travel from their home to an aerodrome other than the one from which they normally operate, any travelling time over and above the journey time from home to the usual operating aerodrome shall be classed as positioning.

7.13 Positioning

All time spent on positioning at the behest of an operator shall count as duty, but positioning does not count as a sector when calculating the FDP, even if the positioning journey precedes a split duty FDP. In these circumstances the FDP commences not later than the time at which the crew member reports for the positioning journey, or positions in accordance with Section 7.12

There is no limit to the amount of positioning which may be undertaken following the completion of a FDP other than compliance with the maximum cumulative duty hours limitation.

On occasion, HKEA may recover a Crew Member from an overseas airfield on a positioning flight on the seventh consecutive day of duty.

7.14 Standby Duty

The time of start, end and nature of the standby duty must be defined and notified to all Flight Crew members. Furthermore, the report time from a standby call out must include, in addition to the relevant travelling time, a minimum of 45 minutes for the Flight Crew Member to prepare to leave home, or the suitable accommodation provided by the company. Section 7.12 refers to the relevant travelling time.

The maximum duration of standby duty shall be 12 hours

If a Flight Crew Member is called out from standby, the standby duty will cease at that time.

When standby is undertaken at home, or in suitable accommodation provided by the company, and a Flight Crew Member is called out for duty then;

(i) For standard Operations, if acclimatised, the maximum FDP shall be based on the Local Time of Start in Table A and shall start at the actual report time.

(ii) For standard Operations, if unacclimatised the FDP shall be based on the length of proceeding Rest (hours) in Table B, which immediately precedes the standby duty and shall start at the actual report time.

(iii) If a Flight Crew Member is called out from Standby for a FDP with a report time after the end of the scheduled Standby duty, then the maximum time limit between the start of the scheduled Standby duty and the end of the FDP shall be 23 hours. This limit will not apply when there is a period of 10 hours or more between call-out and the report time.

(iv) When a Flight Crew Member is on standby duty on immediate readiness at an airport, the maximum FDP is calculated for the Flight Crew Member in accordance with Section 7.14 (i) to (iii) as appropriate except the FDP shall be based on the actual start time of the standby duty and the FDP shall commence at the start time of the standby duty.

7.15 Rest Periods Subsequent To Standby Duty

When standby is undertaken at home, or in suitable accommodation provided by the company, and a Flight Crew member is called out for duty which;

Commences within the scheduled period of standby or commences 10 hours or more after the call out, then the rest period immediately following the duty shall be at least as long as the duty period for which the crew member was called out.

When standby is undertaken at home, or in suitable accommodation provided by the company, and a Flight Crew Member is called out for duty which:

Commences after the scheduled period of standby and less than 10 hours after the call out then the rest period immediately following the duty shall be at least as long as the call out duty plus half the time spent on standby, except standby between 2200-0800 local time does not qualify for the standby rest.

When standby is undertaken on immediate readiness at an airport, and a Flight Crew Member is called out for duty, then the rest period subsequent to the duty shall be at least as long as the total of the standby duty and the duty period.

The method of adding time spent on standby to cumulative totals is stated in Section 7.20

7.16 Rest Periods

7.16.1 General

7.16.1.1 HKEA must notify all Flight Crew Members in good time of a flight duty period so that sufficient and uninterrupted pre-flight rest can be obtained. When away from base the company must provide the Flight Crew with the opportunity and the facilities for adequate pre-flight rest. The company must provide suitable accommodation. When flights are carried out at such short notice that it is impracticable for the company to arrange suitable accommodation, then this responsibility devolves to the aircraft Commander.

7.16.1.2 Flight Crew Members who inform the company that they are having difficulty in achieving adequate pre-flight rest must be given the opportunity to consult an aviation medical specialist.

7.16.1.3 When unacclimatised, no more than 3 consecutive 18-30 hour rest periods, or a total of 4, may be rostered in any 14 day period. If 3 consecutive, or a total of 4 rest periods are so rostered, any subsequent EXB rostered within the same

14 days shall be of at least 34 hours duration. This limitation does not apply to rostering of Standby duties.

7.16.1.4 When a Rest Period affords a Flight Crew Member a Physiological Rest and the duration of the Rest Period is between 18-30 hours, then that Rest Period will not be counted for the purposes of Section 7.16.1.3.

7.16.1.5 When a Flight Crew member is rostered for two consecutive FDPs both of which encroach upon the period 0100-0659 local time at the place where the FDPs commence, and at the completion of the second FDP the time difference between the places where the first FDP began and the second FDP ended is six hours or more, the provisions Section 7.16.1.3 will apply except when the Rest Period between the two consecutive FDPs is Physiological Rest.

7.16.2 Normal rest

When the time difference between the places at which the preceding duty period began and ended is less than 6 hours the minimum rest period which must be provided following the end of that duty period and the commencement of the next FDP shall be:

- At least as long as the preceding duty period. If the preceding duty period comprises standby duties, see Section 7.15.
- 12 hours

Whichever is the greater

In the case when the rest period earned by a Crew Member is 12 hours, and suitable accommodation is provided by the company, then that rest period may be reduced by one hour. In such circumstances, if the travelling time between the aerodrome and the accommodation is more than 30 minutes each way then the rest period must be increased by the amount the total time spent travelling exceeds one hour. The room allocated to the crew member must be available for occupation for a minimum of 10 hours. This sub-paragraph does not apply to rest periods that exceed 12 hours.

If the preceding duty period, which includes any time spent on positioning, exceeded 18 hours, then the ensuing rest period must include a local night.

7.16.3 Physiological Rest

When the time difference between the places at which the preceding duty period began and ended is 6 hours or more the minimum rest period which must be provided following the end of that duty period and the commencement of the next FDP shall be determined as follows:

7.16.3.1 Where the rest period commences within 72 hours of the start of the duty period, which resulted in the crew member becoming unacclimatised, the rest period shall be:

(i) At least as long as the previous duty period, or

(ii) A period of sufficient length to provide a sleep opportunity of at least 8 hours within the period 2200-0800 home base time of the individual crew member, or

(iii) 14 hours;

Whichever is the greater; or

(iv) Scheduled in accordance with Section 7.16.3.3 below

7.16.3.2 Where the rest period commences later than 72 hours of the start of the duty period which resulted in the crew member becoming unacclimatised, the rest period shall be:

(i) At least as long as the previous duty period

(ii) A period of sufficient length to provide a sleep opportunity of at least 8 hours within the period 2200-0800 local time at the place where rest is taken. or

(iii) 14 hours

Whichever is the greater; or

(iv) Scheduled in accordance with Section 7.16.3.3 below.

7.16.3.3 As an alternative to Section 7.16.3.1 and Section 7.16.3.2 above the company may provide a rest period which is:

(i) At least as long as the previous duty period, or

(ii) 34 hours

Whichever is the greater.

Note: *In the event of unforeseen circumstances, the sleep opportunity of 8 hours required in Section 7.16.3.1 (ii) and Section 7.16.3.2 (ii) may be provided between 2200 and 0930 instead of between the stipulated 2200 and 0800, provided the total rest achieved is 14 hours or more.*

7.17 Recovery Periods

7.17.1 General

The recovery periods scheduled in Table "X" below apply when an unacclimatised Flight Crew Member returns to home base on completion of a duty cycle of duration greater than 48 hours.

The provisions of Table "X" are not intended to apply each and every time a Flight Crew Member touches home base during a duty cycle.

A rest period may form part of a recovery period.

DDOs contained within a recovery period shall count toward the overall entitlement of DDOs provided that:

Where 6 or more time zones were crossed during the preceding duty cycle, then the first DDO within the recovery period shall not count toward meeting the 7 DDOs in 28 days requirement - See Section 7.18 (iv)

7.17.2 Length Of Recovery Period

The duration of the recovery period which must be given to a Flight Crew Member following return to home base is given by Table "X" below.

The intent of Table “X” is to ensure that a Flight Crew Member's body clock is recovered to home base local time before the commencement of the next duty cycle.

The length of the recovery period is dependent on the accountable length of the duty cycle and shall be determined from the start of the first duty period in the duty cycle which results in the Crew Member becoming unacclimatised, to the end of the duty cycle.

However, when the first duty period in the duty cycle which resulted in the Crew Member becoming unacclimatised was immediately preceded by any FDP, or a standby at home base where the Crew Member was called out, or a ground duty that encroached on the Late Night Period then the length of the recovery period shall be determined based on the start of that duty period and to the end of the Duty Cycle.

7.17.3 Table X - Instructions For Use

Enter Table X below at column 1 with total accountable hours of the completed Duty Cycle;

Move across to the column which gives the maximum time difference from home base time during the Duty Cycle;

The numbers in italics shows the required length of recovery period in DDO's

Table 7-2: Table X

	Maximum Time Difference from Home Base Time during the Duty Cycle			
	More than 3 hrs but less than 5 hrs	5 hrs or more but less than 6 hrs	6 hrs or more but less than 7 hrs	7 hrs or more
1	2	3	4	5
48 + to 72	1 DDO	1 DDO	2 DDO	2 DDO
72 + to 96	3 DDO	3 DDO	3 DDO	3 DDO
96 + to 120	3 DDO	4 DDO	4 DDO	4 DDO
120 + to 144	3 DDO	4 DDO	5 DDO	5 DDO
144 +	3 DDO	4 DDO	5 DDO	6 DDO

7.18 Domestic Days Off (DDO)

Flight Crew members:

(i) Shall not be rostered for duty on more than 6 consecutive days before being given a DDO or Extended Break (EXB); but
(ii) May be positioned to their home base on the seventh day, provided they are then allocated at least 2 consecutive DDOs, and
(iii) Shall have 2 consecutive DDOs in any consecutive 14 days following the previous 2 consecutive DDOs, and
(iv) Shall have a minimum of 7 DDOs in any consecutive 28 days, and
(v) Shall have an average of at least 8 DDOs in each consecutive 28 days period, averaged over three such periods.
(vi) With a Crew Member's agreement, he may be rostered for duty on not more than 7 consecutive days, and be positioned to his home based on the eighth.

7.19 Flying Hour Limitations

A person shall not act as a member of the Flight Crew of an Aircraft if at the beginning of the flight the aggregate of all previous flight times:

- During the period of 28 consecutive days expiring at the end of the day on which the flight begins exceeds 100 hours; or
- During the period of 12 months, expiring at the end of the previous month exceeds 900 hours.

Note: *Flying hours include all flying as a Crew Member except private flying in Aircraft not exceeding 1600 kg maximum weight.*

7.20 Duty Hour Limitations

7.20.1 General

For the purposes of this section the various periods of consecutive days refereed to herein shall start at 0001 hr Hong Kong local time.

7.20.2 Maximum duty hours

The maximum duty hours for Flight Crew, shall not exceed:

(i) 55 hours in any consecutive 7 days, but may be increased to 60 hours, when a rostered duty covering a series of duty periods, once commenced, is subject to unforeseen delays. This 7 day, 60 hour limit may be further exceeded by a maximum of 10 hours provided this 10 hour exceedance is used solely for the purpose of positioning a crew member back to his home base to complete his duty cycle.

(ii) 95 hours in any 14 consecutive days.

(iii) 190 hours in any 28 consecutive days.

When a Crew Member is not rostered for either standby or flying duties for 28 or more consecutive days, then any duty hours worked need not be added to cumulative totals. However, when a Crew Member is anticipated to return to either standby or flying duties the duty hours worked in the 28 days preceding that duty must be recorded. Before allocating a flying duty to a Crew Member the company must be satisfied that the Crew Member is in compliance with the scheme.

7.20.3 Calculation of cumulative duty hour totals

7.20.3.1 Duty hours shall be added to cumulative totals in accordance with the following:

To count in full:

- All duty periods except as specified in Section 7.20.3.2

7.20.3.2 To Count as half the time on duty:

- Standby duty during the period 2200 to 0800 hours at home or in suitable accommodation provided by the operator, and the Crew Member is not called out for duty.

7.20.3.3 Accounting for periods away from flying duties

When a Crew Member is not rostered for either standby or flying duties for 28 or more consecutive days then any duty hours worked within the 28 days need not be added to cumulative totals. Before allocating a flying duty to a Crew Member the operator must be satisfied that the Crew Member is in compliance with the scheme.

7.21 Courses And Ground Duties Away From Home Base

The standard provisions with respect to DDOs (Section 7.18) and the application of Table X above may be varied without reference to CAD to the extent necessary to the attendance of Flight Crew Members at extended ground courses overseas and while undertaking other ground duties away from home base.

After completion of the course or ground duties and before allocating a flying duty to a Crew Member, the operator must be satisfied that the Crew Member is in compliance with his approved FTL scheme, In some cases this may require the allocation of a Recovery Period in accordance with Table X before flying duties may be undertaken.

7.22 Records To Be Maintained

Records must be kept for the duty and rest periods for all Flight Crew. These records shall include:

For each Flight Crew Member:

(i) The beginning, end and duration of each duty or flight duty period, and function performed during the period. Duration of each rest period prior to a flight duty or standby duty period. Dates of days off. Cumulative totals of duty.

(ii) Daily, rolling 28 day and 12 month totals of flying hours.

Records shall be preserved for at least 12 calendar months from the date of the last relevant entry.

Additionally, operators shall retain all aircraft Commanders' Discretion Reports of extended flight duty periods and reduced rest periods for a period of at least twelve months after the event.

7.23 Sector Times

Sector times used in the application of the approved flight time limitation scheme must reflect actual times achievable in operation. On some the sector time used may be critical in triggering a provision of the approved scheme, such as the requirement for Augmented Crew or, being scheduled tightly within the maximum and minimum set out in an operator's FTL Scheme, cause regular exceedance of the maximum allowable FDP. Operators must maintain records of the number of occasions on which such achieved sector times cause the use of Commander's discretion, and forward the Commander's Reports involved to CAD. These records are to be reviewed monthly and used to adjust where necessary, the crew rostering requirements.

If 15% or more sectors over a 2-month period as reported by Commander's Voyage Reports have actual sector times which exceed by more than 15 minutes the sector times used in the application of the approved scheme, then these sector times shall be adjusted accordingly. If 15% or more FDPs over a 2-month period as reported by Commander's Discretion Reports (CDR) exceed by more than 15 minutes the FDPs used in the application of the approved scheme, then these FDPs shall be adjusted accordingly.

The CAD will conduct periodic checks on operator's records and aircraft Commanders' reports to determine if the planning of flight schedules and duty is compatible with the limitations provided for in the operator's scheme.

7.24 Provisions To Cabin Crew

The following s of CAD 371 also apply to Cabin Crew, as appropriate, and are listed for ease of reference.

- Terminology — see Section 7.1
- Reporting Times — see Section 7.7
- Commanders Discretion -Reduction of a Rest Period — see Section 7.28
- Travelling Time — see Section 7.12
- Positioning — see Section 7.13

7.24.1 General

The provisions set out in this section apply to all Cabin Crew employed as crew members and not only those Cabin Crew carried to meet the provisions of the Air Navigation (Hong Kong) Order.

In any scheduled sector of 10 hours or more, Cabin Crew must have a break from all in-flight duties of at least 1 hour which need not be continuous.

Standard FDP - Acclimatised Cabin Crew

- Table C below shall be used to determine the Standard FDP for acclimatised Cabin Crew.

Table C - Standard FDP for Acclimatised Cabin Crew

Local time of start*	SECTORS							
	1	2	3	4	5	6	7	8 or more
0700-0759	13	12¼	11½	10¾	10	9¼	9	9
0800-1259	14	13¼	12½	11¾	11	10¼	9½	9
1300-1759	13	12¼	11½	10¾	10	9¼	9	9
1800-2159	12	11¼	10½	9¾	9	9	9	9
2200-0659	11	10¼	9½	9	9	9	9	9

*Section 7.7 should be taken into consideration.

Note: *If the preceding FDP was extended due to service disruption, the minimum rest period may be reduced, provided that the subsequent allowable FDP is also reduced by the same amount.*

- Table D shall be used to determine the FDP for unacclimatised Cabin Crew.

Table D- Standard FDP for Unacclimatised Cabin Crew

Length of preceding rest (hours)	SECTORS						
	1	2	3	4	5	6	7
Up to 18	13	12¼	11½	10¾	10	9¼	9
Between 18 and 30	11½	11	10½	9¾	9	9	9
Over 30	13	12¼	11½	10¾	10	9¼	9

Note: *Note at Table C also applies*

7.24.2 Extension Of Standard FDP

The standard FDP in Table C or Table D may be extended by the use of Split Duty as follows:

7.24.3 Extended FDP - Split Duty

7.24.3.1 When a FDP consists of two or more sectors but separated by a period of consecutive hours of rest that is less than a minimum rest period, then the FDP may be extended by the amounts indicated below.

Period of Consecutive Hours of Rest	Maximum Extension of the FEP
Less than 3	NIL
3-10	A period equal to half the hours of consecutive rest taken

7.24.3.2 The portion of the FDP either side of the period of rest must not exceed 10 hours and no FDP utilising the provision of split-duty may exceed 18 hours.

7.24.3.3 Split duty may not be used to extend a FDP already extended by the use of in-flight rest.

7.24.3.4 The period of rest shall not include the time required for intervening post and pre-flight duties nor travel time to and from the place where rest is taken.

7.24.3.5 When the period of rest is 6 hours or less it will suffice if a quiet and comfortable place, not open to the public, is available. If the period of rest is more than 6 hours, or covers 3 hours or more of the period 2200-0800 local time at the place where it occurs, then suitable accommodation must be provided. Where security considerations make the latter requirement inadvisable the provision of suitable accommodation may be waived.

7.24.3.6 Only under the following conditions may a period of rest within a split-duty be taken in an aircraft on the ground:

(i) the period of rest is 6 hours or less, or the requirement for suitable accommodation is waived in accordance with Section 7.24.3.5

(ii) A comfortable reclining seat, or bunk, must be available for each resting crew member.

(iii) There must be no passengers on board.

(iv) There must be no cargo loading or unloading during the period of rest.

(v) Maintenance must not take place within the vicinity of resting crew members.

(vi) the crews must have adequate control of the temperature, lighting and ventilation.

7.24.4 Extended FDP - In-flight rest - Rest taken in a seat

When in-flight relief is provided for Cabin Crew and rest is taken in a seat, the FDPs set out in Tables C and D in Section 7.24.1 maybe extended provided that the total in flight relief, which need not be continuous, is three hours or more, The period of extension shall be equal to one third of the total relief, provided that the maximum FDP permissible shall be 15 hours.

7.24.5 Standby Duty

The time of start, end and nature of the standby duty must be defined and notified to all Cabin Crew members. Furthermore, the report time from a standby call out must include, in addition to the relevant travelling time, a minimum of 45 minutes for the Cabin Crew member to prepare to leave home, or the suitable accommodation provided by the company. Section 7.12 refers to the relevant travelling time.

The maximum duration of standby duty shall be 12 hours

If a Cabin Crew Member is called out from standby, the standby duty will cease at that time.

When standby is undertaken at home, or in suitable accommodation provided by the company and a crew member is called out for duty then

(i) For standard FDP, if acclimatised, the maximum FDP shall be based on the Local Time of Start in Table C and shall start at the actual report time.
(ii) For Standard FDP, if unacclimatised, the FDP shall be based on the Length of preceding Rest (hours) in Table D, which immediately precedes the standby duty and shall start at the actual report time.
(iii) For Extended FDP Operations where rest is taken in a seat, the maximum FDP shall be 15 hours in accordance with Section 7.24.4, The FDP shall start at the actual report time.
(iv) If a Cabin Crew Member is called out from Standby for a FDP with a report time after the end of the scheduled Standby duty, then the maximum time limit between the start of the scheduled Standby duty and the end of the FDP shall be 23 hours. This limit will not apply when there is a period of 10 hours or more between call-out and the report time.

When a Cabin Crew Member is on Standby duty on immediate readiness at an airport, the maximum FDP is calculated for the Cabin Crew Member in accordance with Section 7.23 (i) to (iv) as appropriate except the FDP shall be based on the actual start time of the Standby duty and the FDP shall commence at the start time of the Standby duty.

7.24.6 Rest Periods Subsequent To Standby Duty

When standby is undertaken at home, or in suitable accommodation provided by the company, and a Cabin Crew Member is called out for duty which:

Commences within the schedule period of Standby or commences 10 hours or more after the call out, then the rest period immediately following the duty shall be at least as long as the duty period for which the crew member was called out.

When Standby is undertaken at home, or in suitable accommodation provided by the company, and a Cabin Crew Member is called out for duty which:

Commences after the scheduled period of standby and less than 10 hours after the call out then the rest period immediately following the duty shall be at least as long as the call out duty plus half the time spent on standby, except standby between 2200-0800 local time does not qualify for the standby rest.

When standby is undertaken on immediate readiness at an airport, and a Cabin Crew Member is called out for duty, then the rest period subsequent to the duty shall be at least as long as the total of the standby duty and the duty period.

The method of adding time spent on standby to cumulative totals is stated in Section 7.26.3

7.25 Rest Periods

7.25.1 General

The company must notify all Cabin Crew Members in good time of a flight duty period so that sufficient and uninterrupted pre-flight rest can be obtained. When away from base the company must provide the Cabin Crew with the opportunity and the facilities for adequate pre-flight rest, The Company must provide suitable accommodation. When flights are carried out at such short notice that it is impracticable for the company to arrange suitable accommodation, then this responsibility devolves to the aircraft Commander.

Cabin Crew Members who inform the company that they are having difficulty in achieving adequate pre-flight rest must be given the opportunity to consult an aviation medical specialist.

7.25.2 Normal Rest

When the time difference between the places at which the preceding duty period began and ended is less than 6 hours the minimum rest period which must be provided following the end of that duty period and the commencement of the next FDP shall be:

(i) At least as long as the preceding duty period. If the preceding duty period comprises standby duties, see Section 7.24.6

(ii) 12 hours

Whichever is the greater.

In the case when the rest period earned by a Crew Member is 12 hours, and suitable accommodation is provide by the company, then that rest period may be reduced by one hour. In such circumstances, if the travelling between the aerodrome and the accommodation is more than 30 minutes each way then the rest period must be increased by the amount the total time spent travelling exceeds one hour. The room allocated to the Crew Member must be available for occupation for a minimum of 10 hours. This sub-paragraph does not apply to rest periods that exceeds 12 hours.

If the preceding duty period, which includes any time spent on positioning, exceeded 18 hours, then the ensuing rest period must include a local night.

7.25.3 Physiological Rest

When the time difference between the places at which the preceding duty period began and ended is 6 hours or more the minimum rest period which must be provided following the end of that duty period and the commencement of the next FDP shall be determined as follows:

7.25.3.1 Where the rest period commences within 72 hours of the start of the duty period during which the Cabin Crew Member first became unacclimatised, the rest period shall be:

(i) at least as long as the previous duty period, or

(ii) A period of sufficient length to provide a sleep opportunity of at least 8 hours within the period 2200-0800 home base time of the individual crew member, or

(iii) 14 hours

Whichever is the greater; or

(iv) Scheduled in accordance with Section 7.25.3.3 below.

7.25.3.2 Where the rest period commences later than 72 hours of the start of the duty period during which the Cabin Crew member first became unacclimatised, the rest period shall be:

(i) at least as long as the previous duty period, or

(ii) a period of sufficient length to provide a sleep opportunity of at least 8 hours within the period 2200-0800 local time at the place of rest, or

(iii) 14 hours

Whichever is the greater; or

(iv) Scheduled in accordance with Section 7.25.3.3 below.

7.25.3.3 As an alternative to Section 7.25.3.1 and Section 7.25.3.2 above an operator may provide a rest period which is:

(i) at least as long as the previous duty period, or

(ii) 34 hours

Whichever is the greater.

Note: *In the event of unforeseen circumstances, the sleep opportunity of 8 hours required in Section 7.25.3.1 (ii) and Section 7.25.3.2 (ii) may be provided between 2200-0930 instead of between the stipulated 2200 and 0800, provided the total rest achieved is 14 hours or more.*

7.26 Recovery Periods

Cabin Crew completing a Duty cycle of 120 hours or more, during which the maximum time displacement was more than 6 hours, shall be rostered for a period of not less than 2 Days off. This period must include 3 local nights.

7.26.1 Days Off

(i) Cabin Crew Shall not rostered for duty on more than 6 consecutive days; but

(ii) May be positioned to their home base on the seventh day, provided they are then allocated at least 2 consecutive Days Off, and

(iii) Shall have 2 consecutive Days Off in any consecutive 14 days following the previous 2 consecutive Days Off, and

(iv) Shall have a minimum of 7 Days Off in any consecutive 28 days, and

(v) Shall have an average of at least 8 Days Off in each consecutive 28 days period, averaged over three such periods.

Note: *A "Day Off" means periods free of all duties available for leisure and relaxation. A single Day off shall be a minimum period of 34 hours and include 2 local nights. Consecutive Days Off shall include a further local night for each additional consecutive Day Off. A rest period may form part of a Day Off.*

7.26.2 Duty Hour Limitation

The maximum duty hours for Cabin Crew shall not exceed:

(i) 60 hours in any consecutive 7 days, but may be increased to 65 hours when a rostered duty covering a series of duty periods, once commenced, is subject to unforeseen delays;

(ii) 105 hours in any 14 consecutive days;

(iii) 210 hours in any 28 consecutive days.

7.26.3 Calculation Of Cumulative Duty Hour Totals

Duty hours shall be added to cumulative totals in accordance with the following:

To count in full:

- All duty periods except as specified below.

To count as half the time on duty:

- The standby duty is undertaken during the period 2200-0800 hours at home, or in suitable accommodation provided by the operator, and the crew member can take undisturbed rest and is not called out for duty.

7.26.4 Accounting For Periods Away From Flying Duties

When a Crew Member is not rostered for either standby or flying duties for 28 or more consecutive days then any duty hours worked within the 28 days need not be added to cumulative totals. Before allocating a flying duty to a crew member the operator must be satisfied that crew member is in compliance with the scheme

7.27 Records To Be Maintained

Records must be kept for the duty and rest periods of all Cabin Crew.

These records shall include:

- For each Cabin Crew Member:
- The beginning, end and duration of each duty or flight duty period, and function performed during the period. Duration of each rest period prior to a flight duty or standby duty period. Dates of days off. Cumulative totals of duty.

Records shall be preserved for at least 12 calendar months from the date of the last relevant entry.

Additionally, HKE shall retain all reports of extended flight duty periods for a period of at least twelve months after the event.

7.28 Exceedances of FDL and/or Reduction Of Rest Periods

7.28.1 Commander's Discretion

This provision is to cover unforeseen circumstances which occur during operations. It is not intended for use in regular practice, cannot be rostered and shall only apply once the crew member has commenced a rostered FDP.

In the case of a service disruption, HKEA may request the aircraft Commander to exercise his discretion in order to extend a FDP, or exceptionally, to reduce a Rest Period.

The aircraft Commander may at his own initiative decide to do so.

Any forecast extension greater than 1 hr, Duty Operations Manager (DOM) is to be notified.

Any extension exceeding 2 hours have to be approved as per Section 7.28.

The provisions of this section will only apply to a reduction of a Rest Period as described in Section 7.29

Figure 7-1: CDR Form - Extension of FDP

HONG KONG EXPRESS AIRWAYS LIMITED

COMMANDER'S DISCRETION REPORT – EXTENSION OF FLYING DUTY PERIOD/FLYING HOURS

PART A Operator ______UO______ Aircraft Type________________ Flight Number ____________

Commander ________________________________ Date ________________________

NOTE: If discretion exercised for part crew; state name(s) below.

Crew affected : ____

PART B **VOYAGE DETAILS**

1. Crew acclimatized YES/NO
2. (If relevant) Length of preceding rest 18 to 30 hrs / under 18 / over 30 hrs (circle as appropriate)
3. Split duty: actual time off ………………..time on ………………
4. If relief pilot used the allocated crew rest was ………/……….. and equals to ………/……….. FDP extension.

Schedule (Planned)				Actual		
	Place	UTC	Local		UTC	Local
Roster start				Duty started		
Depart				Departed		
Arrive				Arrived		
Depart				Departed		
Arrive				Arrived		
Depart				Departed		
Arrive				Arrived		
Depart				Departed		
Arrive				Arrived		
Depart				Departed		
Arrive				Arrived		
FDP to end				FDP ended		
Planned FDP				Actual FDP		
				Allowable FDP		
				FDP Extension		

HKEO-10 P.T.O. Rev.6 (Oct 2015)

HONG KONG EXPRESS AIRWAYS LIMITED

COMMANDER'S DISCRETION REPORT – EXTENSION OF FLYING DUTY PERIOD/FLYING HOURS

PART C COMMANDER'S REPORT (TO BE FILLED OUT IF FDP EXTENDED > 30 minutes)

Commander's Signature_____________________________

Date _____________________________

OFFICE USE ONLY:

GMOC REMARKS:

☐ Filed to CAD (OM-A)

Signed ___________________________

GMOC

Date _____________________________

This form has been reviewed and accepted by

Signed ___________________________ GMF

Date _____________________________

Signed ___________________________ GMQSS

Date _____________________________

☐ Filed

HKEO-10 Rev.6 (Oct 2015)

Note: *Operators shall retain all aircraft Commanders' discretion reports of extended flight duty periods for a period of at least twelve months after the event.*

7.29 Reduction Of A Rest Period

(1) The provisions of this paragraph do not apply to recovery periods taken between duty cycles.

(2) HKEA may request the aircraft Commander or the aircraft Commander may, at his discretion after taking note of the circumstances of other members of the crew, reduce a rest period but only insofar as the room allocated to the Crew Member must be available for occupation for a minimum of 10 hours. The exercise of such discretion shall be considered exceptional and must not be used to reduce successive rest periods. If the preceding FDP was extended due to service disruption, the minimum rest period may be reduced, provided that the subsequent allowable FDP is also reduced by the same amount.

(3) Whenever an Aircraft Commander reduces a rest period, it shall be reported to the company on a Commander's Discretion Report (CDR). If the reduction is more than 1 hour, then the airline shall submit the CDR together with the airline's comments, to the CAD, within 7 days of the aircraft's return to base.

(4) The rest period, following a sequence of reduced rest and an extended FDP, cannot be reduced.

Figure 7-2: CDR Form - Reduction Of Rest Period

HONG KONG EXPRESS AIRWAYS LIMITED

COMMANDER'S DISCRETION REPORT – REDUCTION OF REST

NOTE: All times to be recorded as date/time six-figure groups, expressed in both UTC and Local time.

PART A Operator ______________ Aircraft Type_________________ Flight Number ____________

Commander __________________________________ Date _________________________

NOTE: If discretion exercised for part crew or individuals state name(s) and operating capacity below.

PART B

	Place	UTC	Local	Hours
Last duty started				
Last duty ended				
Rest earned				
Calculated earliest next available				
Actual start of next FDP				
Rest period reduced by				

Crew affected:

PART C Commander's Report

Signed _____________________________

Date _______________________________

PART D Operator's Remarks/Action Taken

Signed _____________________________

Date _______________________________

Forwarded to HKCAD

Filed

HKEO-10A Rev.1

Note: *Operators shall retain all reduced rest periods reports for a period of at least twelve months after the event.*

Requests made must be reasonable in the light of the prevailing circumstances. Only Director, Operations (DO) and/or General Manager Flying (GMF) may initiate such requests.

The extension of a FDP following a reduced rest period shall only be made in exceptional circumstances. Aircraft Commanders, General Manager Flying (GMF) and/or Director, Operations (DO) must be made aware of this requirement.

After receiving a request the aircraft Commander, taking into consideration all relevant factors including the circumstances of the other crew members, and the over-riding consideration of safety, shall inform the operator of his decision. The aircraft Commander may elect to work less than and not necessarily to the full extent of, the provisions of this section below. His decision in such matters shall be final and unquestioned.

HKEA shall maintain a written record of each and every request made. The record must show the company's reason for the request and the aircraft Commander's decision. where an aircraft Commander decides to operate, he must complete a CDR giving reasons for his decision, If the extension of an FDP exceeds 2 hours or follows upon a reduced rest period, or a rest period is reduced by more than 1 hour, then a copy of the written record and the CDR must be forwarded to the Flight Operations Inspectorate within 7 days of the aircraft's return to base.

HKEA must preserve for a period of 12 months all CDRs and records of requests made.

In the case of service disruption the maximum extension to a FDP shall be 3 hours. In the event that a Standard FDP has already been extended by use of an augmented crew, or split duty, or follows upon a reduced rest period, then the maximum extension to the FDP shall be 2 hours. These 3 and 2 hour extensions may only be exceeded in an emergency. In this respect, an emergency is a situation which in the judgment of the Aircraft Commander presents a serious risk to the health or safety of crew and passengers, or endangers the lives of others.

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Chapter 8 – Operating Procedures

8.0 General Operating Policies

8.0.1 Objectives

HKEA'S objectives are:

- Safety
- Efficiency
- Standardization

All efforts shall be made to guarantee an on time departure.

While Crew should be mindful of the operating schedule, it should not be met at the expense of SAFE and PROPER conduct of pre-flight duties, which must be completed with care, attention and in an unhurried manner. If necessary, a delay should be incurred in order to conduct the flight safely.

Flight crew is expected to acknowledge the contents of this and any other manual relating to the safe operation of our fleet.

Unless dictated so by safety reasons (Commander's emergency authority) and overall flight performance improvement, flight crew is expected to follow this manual entirely, and in a daily basis. Preferences are to be kept to a minimum, and shall not conflict with HKEA/Airbus standards/procedures.

This manual is not intended to preclude sound judgement, as long as common sense is envisaged (Commander concurrence). Should an abnormality that is not covered by these procedures occur, then the flight crew must use his best judgement and coordination. The process of decision making should comprise knowledge and skill.

Note: should the commander decide to deviate from the mentioned manuals, it must be clearly stated in advance to the other (s) pilot (s).

The importance of good airmanship, good communication and common sense is to be highlighted as a desired company culture. Those aspects, combined, should lead to an effective and desired level of situational awareness (i.e. ability to accurately perceive what is going on in the cockpit and on the surrounding environment).

Afterwards, sticking to standards is of a paramount importance in a multicultural airline. By doing so, cockpit and cabin crew should be able to identify and communicate any abnormal and/or unsafe situation ASAP.

Safety is everyone's business.

8.0.2 BASIC PERFORMANCE OF FLIGHT CREW MEMBER (FCM)

To assure a safe and efficient operation, each FCM shall be proficient in three areas of competence: technical, procedural and interpersonal.

Each area consists of vital elements. Optimum overall performance is achieved by integrated application of these elements:

Elements	Descriptors
Manual Flying FCM are able to control the aircraft in all manoeuvres. They endeavour to make the flight as accurate and smooth as possible	Ability • Be able to control the aircraft manually at all times • Stabilize the aircraft in all phases of flights • Maintain horizontal and vertical profile • Operate the aircraft accurately and smoothly Execution • Apply basic pitch & power values • Coordinate control inputs and trim • Recognize trends by instrument scan and react as appropriate • Adhere to applicable limitations and tolerances according to OM Part B and OM Part D
Knowledge of Systems Crew Members know their aircraft well, with special emphasis on operation, limits and interaction of systems.	System Design • Know the structure and function • Know the limitations • Be familiar with the documentation • Application • Know how to operate systems • Know the behaviour and interaction of systems
Use of Automation FCM are able to operate their aircraft in the optimum mode of automation. They have the flexibility needed to move from one level of automation to another.	Handling • Be able to manage all modes of automation • Use optimum mode of automation • Use automation to reduce workload Monitoring • Be aware of active mode of automation • Be aware of mode changes • Be flexible in changing level of automation

Elements	Descriptors
Knowledge of Procedures It is essential for FCM to be thoroughly familiar with published procedures.	Normal Procedures • Know normal procedures for all phases of flight • Be thoroughly familiar with all relevant standard operating procedures Abnormal Procedures • Know how to handle an abnormal situation • Know memory actions by heart • Be familiar with relevant abnormal procedures

Elements	Descriptors
Adhere to Procedures Use and application of procedures is vital. If the situation requires, deviation from standard procedures might be necessary. This requires prior announcement, and consultation with the other Crew.	Discipline • Strictly apply required published procedures • Perform procedures disciplined and accurately • Deviate from procedures only if a higher degree of safety is achieved
Communications Generally, communication includes information transfer and social aspects. Crew Members share information, and assure reception and understanding. Suggestions of other Crew Members are considered, even if one does not agree. Ambiguities and uncertainties are announced.	Atmosphere • Encourage open and honest communication • Achieve a positive first impression • Listen actively • Consider suggestions Information Transfer • Share information • Assure reception • Assure understanding Information Management • Clearly state plans and intentions • Announce ambiguities • Announce uncertainties • Speak frankly about problems within the Crew

Elements	Descriptors
Leadership and Teamwork Led by the Commander, the Crew achieves a safe and efficient performance in a climate that is ratio4nal and free of intimidation. Social interaction conflicts have to be addressed and managed. Every Crew Member takes initiative to be an active and constructive part of the team.	Commandability • Take the lead of the Crew as Commander • Establish goals, control outcome and correct • Consider condition of others Team Ability • Act as a constructive Member of a team • Take initiative • Encourage others to cooperate • Support others • Seek ideas and views from others • Present own point of view • Provide appropriate feedback • Propose alternative ideas if appropriate Conflict Management • Address and manage conflicts • Achieve rational climate • Avoid intimidation • Adopt assertive behaviour if appropriate and persist until attention of others is gained or corrective action taken • Accept appropriate criticism • Avoid competition between Crew Members

Elements	Descriptors
Workload Management Crew Members clearly prioritize operational tasks and distribute them appropriately. Available external and internal resources are used to accomplish task completion in good time Stress and. error are inherent factors of flight, and Crew Members aim to minimize their negative effects.	Task • Prioritize operational tasks • Distribute tasks appropriately • Complete tasks in due time • Use external and internal resources Time management • Plan ahead • Allocate time to tasks appropriately Stress and Error • Aim to minimize negative effects of stress • Aim to minimize effects of error

Elements	Descriptors
Situation Awareness and Decision Making Crew Members recognize and anticipate factors affecting the flight. After these factors are evaluated, they choose the appropriate course of action. To achieve a favourable outcome, Crew Members actively monitor execution and development of the situation.	Preparation • Act with respect to time available • Avoid distractions • Anticipate factors affecting the flight • Recognize factors affecting the flight Processing • Evaluate factors affecting the flight • Choose appropriate course of action • Monitor execution • Monitor development of the situation Interaction • Involve others in the process • Discuss discrepancies

8.0.3 Crew Resource Management (CRM)

CRM is defined as the utilisation of all available human, informational and equipment

resources towards the effective performance of a safe and efficient flight.

CRM is an active process by crew members to identify significant threats to an operation, communicate them to each other and to develop and take measures to avoid or minimize the risk.

CRM skills provide a primary line of defense against threats to safety that exist in the aviation system and against human errors and its consequences.

The basic performance of Flight Crew has been defined, so as to include all CRM skills. Refer to Chap 8.0.2.

8.0.4 TASK SHARING

"Sector PF/PM" applies during the pre-flight phase task sharing, and refers to the pilot nominated by the Commander to act as PF/PM on a specific sector.

HKEA recommends that, in situations under normal workload, support and in areas whereby the task sharing is not defined, PF should maintain/monitor the management of the flight and request PM to perform the required actions.

PM is to act proactively and assertively along the flight. But, on the other hand, PM is to give the PF some time to act.

Should safety be compromised, then the PM is to prompt the PF or take controls ASAP.

Golden Rules for Pilots must be applied consistently.

Flying the aircraft remains the highest order of priority, regardless of other demands upon the crew's attention.

The roles and responsibilities of PF and PM are defined in the manufacturer's manuals.

This task sharing will maximize communication between crew with reference to CRM, and minimize the transfer of controls.

As a general rule, should an abnormal situation arise, the PF shall maintain control of the aircraft.

If there is no significant aircraft performance degradation or change in handling characteristics or a deviation in normal working procedures, the First Officer may complete the flight as PF.

The company recommends the PM to prepare the FMGS for the approach and landing under the instruction of the PF whilst in Engine Out / Emergency conditions and / or below 10,000 ft AAL.

The Commander retains the final authority for all actions performed.

The F/O when acting as PF is also responsible for ATL in and out entries, reading load sheet, PA and taxiing of the aircraft.

The Commander is responsible for monitoring the PF duties and signing all appropriate documents.

Pilots can perform duties (e.g. filling charts in folders, OFP calculations, paperwork) during climb, above 10,000 ft AAL, but should refrain from non-relevant duties in circumstances such as, but not limited to:

- Altitude capture monitoring (1,000 ft to go);
- Inserting a temporary F-PLN;
- Weather deviation;
- Overflying waypoints during remote or Oceanic area operations;
- From engine start until 10,000ft AAL during climb and from 10,000ft AAL until shutdown during descent (Sterile Cockpit rule);
- When only one pilot is monitoring the active ATC frequency.

Communication from flight deck to cabin via interphone is normally a PM task.

8.0.5 STANDARD OPERATING PROCEDURES (SOP)

SOPs fall into two categories, the first of which identifies a core of mandatory actions or procedures that must always be performed because the failure to do so has a direct adverse impact on the safety of operation.

These SOPs include formal items such as Standard Callouts, altimeter setting and checking procedures, emergency drills, and non-exceedance of limitations.

The formal SOPs are also categorized by the imperatives of "shall" and "must" and include those procedures which require a singular means of compliance e.g. engine failure at take-off.

The second category of standard operating procedures has the purpose of standardizing procedures to make it possible to crew any two flight crew members together on a non-regular basis without lowering safety standards.

The consequential requirement is that personal methods or practices should not be introduced. New or changed procedures may only be introduced or promulgated on the authority of the Management.

The SOPs must always be used.

8.0.5.1 STANDARD CALLOUTS

Standard callouts are SOPs. They are presented in the OM-B of the respective aircraft type.

Standard calls, using unequivocal English language as challenge and response, form the principal discipline to verify correct flight progress, highlight deviation and provide an alert system to detect crew incapacitation.

It is very important that the exact terminology is used precisely so that misunderstandings between crew members, or between crew members and other staff do not occur.

If a callout is not properly accomplished (PF, PM or auto call), the other pilot should do it.

However, it is recommended to give the PF/PM some time to do so:

- FMA: the PM will announce the FMA change when the box disappears and call out has not been done by the PF;
- Approaching cleared FL/altitude/height: the PF will announce "one thousand to go" when the altitude reading flashes and call out has not been done by the PM.

In addition, it is recommended to delay the callout until the PM has finished the ATC conversation.

The absence of a callout, may indicate a system failure or an incapacitated pilot.

8.0.6 MONITORING, CROSS CHECKING & LOOK-OUT

The primary task either flight crew member has to perform, is to fly the aircraft.

Monitoring and look-out are important secondary duties. Full freedom to monitor can only be achieved by making the most efficient use of flight deck resources and aircraft equipment. In the meanwhile, the flight crew shall maintain vigilance for conflicting visual traffic at all times ("see and avoid").

At least the PF is to look outside and visually acquire surrounding nearby traffic when applicable.

Flight crew must maintain situational awareness at all times. Looking outside plays an important role in this matter.

The purpose of monitoring is to detect unintentional deviation from the planned flight path parameters and permit effective correction. The respective Normal

Procedures manual directs the crew to the monitoring policy which creates the ideal of full awareness of both flight crew members as to aircraft position, situation and configuration.

Both flight crew members must be alert to the possibility of the other making errors in calculation and tabular selections, e.g. takeoff or landing weights, engine thrust settings, speeds, descent range etc. Figures should not be blindly accepted. There is a need to always check mentally for gross errors.

8.0.6.1 MONITORING IN ABNORMAL & EMERGENCY SITUATIONS

The importance of the monitoring of one flight crew member by the other during all abnormal and emergency procedures cannot be over-emphasized.

Particular attention is required to monitor the actions when shutting down an engine in flight, and the flight instruments during the completion of the vital actions.

8.0.7 COMMUNICATION

8.0.7.1 GENERAL

Effective communication is an important factor in securing safety in aviation and

includes clear unambiguous transmission of messages, careful listening, and positive feedback where appropriate.

Communication not only refers to ATC communication.

It is ATC communication, inter-cockpit verbal exchange, Cabin Crew liaison, PA announcements and dealing with ground staff and agents.

All communications must be done in English plain language and aloud.

Non-essential conversation is to be avoided at all costs in critical phases of flight.

One pilot should always acknowledge the other pilot's callout or information (i.e. remaining silent means the information was not received and the process should be repeated until confirmation.

8.0.7.2 ATC COMMUNICATION

A continuous radio watch shall be maintained by the flight crew at all times. English shall be the language used with ATC and on the flight deck.

If an instruction is not clear enough for both pilots, request clarification.

Do not assume!

The initial call sign used when communicating with ATC must be the same as that filed in the ATS flight plan (i.e. Hong Kong Shuttle).

Abbreviated call sign (i.e. Shuttle) may only be used if it is first used by ATC, and it may be used thereafter only until the next frequency change.

ATC VHF communications don't require an initial call on first contact (i.e. say the entire message on first contact). On first contact the flight crew shall report the cleared flight level/altitude, unless specifically requested not to do so by ATC.

Numbers pronunciation:

- 25 -> "Two five" (i.e. not "Twenty five")
- 10000 -> "One zero thousand" (i.e. not "Ten thousand")

When the aircraft is in motion, at least one pilot will monitor the active ATC frequency at all times (unless on SELCAL watch).

ATC radar contact or squawk identification messages are to be acknowledged (i.e. do not just press the hand mike).

- ATC: "Shuttle one eight two radar contact"
- PM: "Shuttle one eight two"
- ATC: "Shuttle one eight two squawk ident"
- PM: "Squawk ident Shuttle one eight two"

Crews must take adequate steps to ensure proper monitoring of all ATC communications.

At all times, next to monitoring the active ATC frequency, a listening watch will be maintained on 121.50.

When any pilot is not able to monitor the ATC frequency (e.g. listening to ATIS, making company calls, making PA, leaving the flight deck, etc.), the remaining pilot shall:

- Use the boom headset and boom mike until the other pilot resumes ATC monitoring, and
- Check that the volume is adequate, and
- Shall give increased attention to ATC communication due to the absence of support or backup from the other pilot.

The pilot monitoring ATC should update the other pilot when the latter resumes ATC monitoring, and communicate any relevant new information or changes in ATC clearances or instructions.

For normal operations, the selection of VHF and HF communication frequencies and all ATC communications are performed by the PM.

ACARS entries should normally be made by the PM. They should be accomplished prior to high workload periods such as departure, arrival or holding.

8.0.7.2.1 Callsign Confusion - Avoidance

Aircraft with similar callsigns on the same frequency may lead to confusion and pose a potential safety hazard. ATC Controllers will warn pilots if there is the potential for confusion between similar callsigns.

Callsign confusion can be minimised by the Flight Crew adhering to the following guidelines:

(1) Actively monitor ATC transmissions and report to ATC if they suspect another aircraft has accepted a clearance not intended for them.

(2) If an instruction is not clear for both pilots, do not execute the clearance before confirming the instruction.

On first contact with ATC the flight crew shall report the cleared flight level, Heading and speed previously assigned, unless specifically requested not to do so by ATC, for example when advised to contact Director 119.1 "with call sign only"

8.0.7.3 INTER-COCKPIT COMMUNICATION

Inter-cockpit communication includes the following formal items:

- Checklists
- Standard Call-outs
- Briefings
- Monitoring Cross Checks

8.0.7.4 CHECKLISTS

8.0.7.4.1 General

One of the most important factors in good flight deck management is the proper utilization of the checklist. Reliable normal operations and repeatable success in dealing with abnormal and emergency situations are clearly attributable to the checklist system. The system does, however, depend absolutely on the command being given for the correct checklist, and ensuring its completion.

Crews shall complete appropriate checklists and, time permitting, refer to technical descriptions in the respective FCOM Volume.

It is not best practice to perform actions other than QRH memory items from memory (i.e. do not recall checklists from memory).

Reading of checklists requires the use of clear diction and must be audible.

Challenge and response checklists should reflect the tone of challenge, and responses should be equally positive.

Response should reflect positive unambiguous feedback. This is made more effective by reading and speaking, where specified, the standard terminology.

8.0.7.4.2 Normal Checklist

Try to read the checklist in a silent and low workload environment (i.e. wait for the ground staff to leave the cockpit before reading the checklist).

It is all flight crew members' responsibility to check appropriate system response during a checklist reading.

Should a checklist be interrupted by ATC, the PM will resume reading or start it over.

Checklists are performed as described with the following supplementary information:

- PM is to start reading the checklist with its title
- PM checklist below the line, with "Below the Line" only.
- "Both" means first PF, then PM must respond to the challenge
- When ___ appears, values must be stated
- When "As required" is shown, state the correct configuration

8.0.7.4.3 Abnormal and Emergency Procedures

Abnormal and Emergency Procedures and the corresponding checklists require to be dealt with on a different basis.

This is described in the OM-B of the respective aircraft type.

8.0.7.5 BRIEFINGS

8.0.7.5.1 General

Briefings ensure that all crew members are aware of the proposed plan of action.

The intention of the CTWO (Chart, Terrain, Weather and Operational) and CTWO-F (Chart, Terrain, Weather, Operational and Fuel) briefing is to deliver relevant and important information in a logical and concise manner. As operational risks may vary from flight to flight, a highlight of the threats and the measures to deal with them in a risk-based briefing format will enable crew members to address these risks accordingly.

Details that are briefed should be related to operational data that is not in the FMGS, or is of significant importance (e.g. 150kt and 160kt at 4 DME IZSL - VHHH ILS - or initial altitude 5,000ft - VHHH SID). Verbally repeating tracks, distances, slopes and speed/altitude restrictions from the MCDU is not desired because it detracts from the goal of a concise, risk based briefing. This is not to say that it does not need to be confirmed, but confirmation is silent. Each pilot accomplishes a **thorough** self-briefing during preparation or confirmation on the FMGC (make sure no errors are present). Only the laid down minimum briefing points plus issues considered to be a threat or risk shall be verbalized during the verbal briefing.

The importance of the CTWO-F briefing philosophy is the confirmation of acceptance by the PM when advising he is ready for the brief. He must have completed a full review of the inputs versus charts (i.e. fully understand and acknowledge the box and the charts), and have the charts ready.

8.0.7.5.2 Briefing Process

A verbal briefing shall be accomplished prior to each departure and landing, as expanded below.

Ideally, descent briefing should be performed when TOD is within 160NM.

> Note: In Chinese airspace, the actual TOD will normally occur before the FMGS calculated TOD. Therefore, in order to have a more realistic indication of TOD, consider inserting waypoint altitude requirements as per the Port Page.

Hand over of the aircraft control whilst briefing is not necessary, unless either pilot considers it appropriate to do so, weather in vicinity or approaching TOD.

> Note: should a hand over be necessary, PM will have both control and ATC.

At the commencement of the briefing, the PF shall display the MCDU F-PLN page, then starts briefing by reading out the RWY/SID/Transition name (departure) or Transition/STAR/RWY (approach) name from the MCDU. Waypoints, tracks, distance, DME required and slope information are not verbalized.

If the briefing has been conducted prior to receiving the ATC clearance then, upon receiving the clearance, the same page shall be reselected and verbalized by the PF for confirmation.

For turn-around flights, reference may be made to the relevant items addressed during the approach briefing, as they have been recently reviewed.

When departing or landing at the same airport while operating a multi-sector pairing, reference may be made to the relevant items briefed on the first departure while briefing the differences and any additional information.

If possible, try to accomplish the briefing in a quiet cockpit environment (i.e. anticipate common ground staff interference).

8.0.7.5.3 Risk-Based Briefing

Refer to OM-B A320 Chapter 2 Normal Procedures 2.5.13.3.

8.0.7.5.4 Emergency Briefing

Refer to OM-B A320 Chapter 2 Normal Procedures 2.5.13.4.

8.0.7.5.5 Pre-Departure Briefing

Before each takeoff, a Pre-Departure Briefing will be given, consisting of:

- A Risk-Based Departure Briefing, followed by
- The Emergency Briefing

Refer to OM-B A320 Chapter 2 Normal Procedures 2.5.13.6.

8.0.7.6 DRAWING ATTENTION TO DEVIATIONS AND ERRORS

Monitoring and cross checking is only effective to the extent that the PM feels that he can draw attention to errors and deviations. Therefore, it is important that the inter cockpit relationship encourages this to happen. This is a function not only of the PF but also of the PM.

8.0.7.7 STERILE COCKPIT

Flight Crew shall avoid any conversation not directly related to the safe operation of the aircraft and listening to any frequency not required for current operations from commencement of push back to 10,000 ft AAL on departure, and from 10,000 ft AAL to engine shutdown on arrival.

In addition, communication between Flight and Cabin Crew should be limited to the essential tasks.

The intention is that both pilots are giving full attention to the control of the aircraft and to live ATC frequency. Adherence to this policy facilitates effective crew communications as well as communication of emergency or safety information by Cabin Crew.

Communication with handling agent and/or maintenance, or taking of weather info should be avoided during the sterile cockpit period, except as detailed in paragraph 8.0.7.10.

No unnecessary paperwork shall be accomplished during sterile cockpit operations.

8.0.7.8 CABIN CREW LIAISON

For the cabin crew to be effective in their safety function, the relationship between cabin and flight deck is reinforced by communications.

The introduction of the operating crew to each other prior to departure is the ideal time to review security procedures, discuss operational issues such as turbulence, defects which will impact on the operation, health and safety issues, any conflicts, etc.

If the crew complement is incomplete at this time, the pertinent issues shall be addressed with the crew prior to dispatch, when the crew complement is complete.

The Commander shall make a point of re-confirming that he would like to be informed of anything which may occur in the cabin that may seem to be abnormal, such as unusual noises and reports from passengers.

Cabin crew should never take for granted that the flight crew are aware of serious malfunctions such as engine fires, fuel leaks or loose external structure.

Cabin crew shall alert the flight deck using the cabin interphone or other prescribed means.

Formal reports between flight and cabin crew are listed in checklists.

Routine or non-operational liaison between flight and cabin crew should not take place during climb or descent.

8.0.7.9 PA ANNOUNCEMENTS

The passenger PA has a very important safety role and is also a useful commercial tool.

The following outlines the safety and operational procedures in relation to the use of the passenger PA system:

- The Hong Kong Runway Safety Program mentions: "The taxi phase should be treated as a 'critical phase of flight', which requires careful planning."

  Therefore, only essential PA's should be made during taxi out or taxi in. Stop the aircraft and set the parking brake when doing so.
  When advising the cabin crew to take their seats for departure, keep the address short and concise.
- Do not let the PA announcements infringe on runway safety.
- Before top of descent, the PF should make a PA advising of the expected time of arrival, weather and anything of interest.
- During descent and holding, the PAs should be kept to a minimum. In case of extended holding, it's good practice to advise the cabin crew and passengers.
- Standard calls towards the cabin crew shall be made at the appropriate time.
- Do not make a PA crossing or entering a runway except in an emergency or when advising the cabin crew to be seated for takeoff.

8.0.7.10 COMMUNICATION WITH MAINTENANCE PERSONNEL

Communication between cockpit and maintenance personnel is to be kept as simple as possible and as close as possible to the standard phraseology, in order to avoid language misunderstandings.

PF is to maintain maintenance personnel aware of any delay.

It shall be considered best practice that, in addition to reporting aircraft defects in the technical log, it is extremely helpful to the subsequent maintenance investigations if the Commander amplifies the problem experienced and the indications experienced by verbal debriefing to maintenance personnel.

This process helps to generate improved understanding of operating problems and leads to improved engineering response.

This process may be utilized in flight only during periods of reduced workload and consistent with the sterile cockpit policy.

When an abnormal condition is identified after takeoff and the aircraft is not intended to climb to FL100, the above procedure shall be utilized when the requisite checklists are completed and the aircraft is established in a holding pattern or is under radar control.

8.0.8 ALTIMETRY

Each pilot sets his BARO ref - the CM1 sets the ISIS BARO ref.

Altitude constraints are to be set in the FCU altitude window (i.e. do not blindly follow managed mode in regards to vertical navigation).

For departure, insert the first SID altitude constraint, even if a higher altitude was received in the ATC airway clearance e.g. NARITA RWY 34L/R, ATC climb to FL200, but set 7,000 (First constraint)

If no SID constraint, then insert either expected initial clearance altitude (if known) or OFP cruise level.

If in doubt, confirm with ATC.

Lowest altitude to be set on FCU:

- Instrument approach: Final Approach Fix altitude
- Visual approach / Circuit: Circuit altitude

All metric altitudes/levels are to be set as per the company flight level allocation in China chart. If using the Navtech approach chart conversion table, crew should round to the nearest hundred.

Baro reference setting will be changed when actually passing the TA/TL.

8.0.9 AIRCRAFT OPERATING LIMITATIONS

"Each aircraft shall be operated in compliance with the terms of its Certificate of Airworthiness and within the approved limitations contained in its Aircraft Flight Manual."

The Airplane Flight Manual limitations are expanded into the FCOM volume of the respective aircraft type, and these must be respected.

Compliance with this regulation is ensured by adherence to the normal and emergency checklists, Standard Operating Procedures and observation of the Aircraft Flight Manual Limitations.

Commanders are responsible for ensuring compliance with this regulation.

8.0.10 AIRCRAFT SYSTEMS

8.0.10.1 CHECKING OF AIRCRAFT SYSTEMS

The PM will inform the other flight crew member/s before performing aircraft systems checks. E.g. APU or Eng Fire system test.

8.0.10.2 AUTO FLIGHT

Automatic systems are convenient tools to aid pilots in performing their duties. They are not designed to overcome pilot's sound judgment during the flight, though. Therefore, if auto systems are not functioning as expected, revert to more basic modes or just disconnect the AFDS and manually fly the aircraft.

Occasional raw data crosscheck denotes good airmanship. Do not blindly follow AFDS and FMGS (e.g. crosscheck OFP fuel and fuel predictions on FMGS, raw data display during NPA, etc.).

8.0.10.2.1 MCDU

<u>General</u>

Any FMGS input should be confirmed by cross-checking the corresponding annunciation or data on PFD/ND, and agreed by both pilots before execution.

Notes: Activation of approach phase does not need PF's confirmation:

Any scratch pad messages are to be called out by the first pilot realizing the condition, then cleared. The other pilot is to acknowledge:

Before engine start, any pilot may perform required actions, but must make sure the other pilot is aware of the action.

After engine start, and until engine shutdown, the aim is for the PF to request PM to perform the required actions on the FMGS, except in cruise phase / above 10,000 ft AAL, where PF can perform the insertions as part of the approach preparation.

Setup below 10,000 ft AAL

Whenever possible, FMGS insertions should be avoided below 10,000ft AAL.

However, should FMGS preparation be required, PM is to perform the actions under the instruction of PF. PF should communicate to PM to perform the changes following the standard sequence.

This Task Sharing will maximize communication between crew with reference to CRM and minimize the transfer of the controls.

FPLN Sequencing

Auto-sequencing is the preferred option, however, when being radar vectored, it may be necessary to manually sequence the flight plan in order to have the missed approach procedure available.

In case manual sequencing is required, consider sequencing by clearing one waypoint at a time in order to keep the altitude restrictions displayed.

In addition, using the "DCT TO" function for sequencing will arm the NAV mode!

"NAV blue" feature, this should be used with care especially during radar vectoring.

Be aware that the use of extended centreline may reduce situational awareness in regards to terrain clearance.

When using DIR/TO, the selection of ABEAM PTS is only required to meet the fuel check requirements or for operational reasons (e.g. reporting requirements) (i.e. default selection for a "Direct to" call is without ABEAM PTS selection).

Fix Info

Can be utilised in order to enhance situational awareness, such as:

- EOSID radius and radials
- Enroute diversion
- Enroute ABM

Autopilot usage

After T/O, the A/P is to be engaged by the PF before acceleration altitude, unless otherwise briefed.

Use of cross-side A/P (e.g. A/P 2 when CM1 is PF) is permitted in case of malfunction.

Side stick is to be guarded with A/P engaged below MSA.

V/S mode should not be used during climb at high altitude above FL 300.

During approach, consider disengaging the A/P early enough to acknowledge how the aircraft is behaving regarding current weather conditions (i.e. crosswind corrections, gusts etc.).

ATHR usage

A/THR can be disconnected any time if deemed necessary. It may be more appropriate to do so in gusty conditions when A/P is disengaged, due to A/THR performance being less than optimal with A/P off.

Note: flight crew is to be aware of increased workload.

Avoid disengaging A/THR below 1,000 ft AAL, in order not to upset the approach with undesired thrust and speed changes.

During approach, the thrust levers will be guarded latest from RA alive.

If A/THR is to be used throughout the entire approach and landing, it is permissible to add a small increment to the VAPP for further speed buffer, as long as runway length is not limiting. This technique is especially recommended for strong x-winds, gusty conditions.

FD usage

If turning off the FDs is required, turn off both FDs to ensure that the A/THR is in SPEED mode (if A/THR is active).

Operating with a single FD ON is not permitted.

FCU

After having set a cleared FL/altitude/height, set the altitude outer knob to the "1000" position.

Below 10,000 ft, preference for auto flight interventions is FCU commands (i.e. avoid going "heads down").

Note: under low workload, PF can request PM to clear speed/altitude restrictions in the FMGS, as appropriate.

If A/P and/or A/THR are off, PM is to set FCU following PF's commands.

8.0.10.3 COMM

Use ACP INT/RAD switch in the neutral position when:

- A ground headset is connected and communication with maintenance personnel is not desired;
- Pilot's headsets are not in use

8.0.10.4 EQUIPMENT

Shoulder Harness

Should be used from engine start/push-back to 10,000 ft AAL during climb, and, during descent, from TOD.

Note: should be used at any other time in the case of severe turbulence encounter.

8.0.10.5 FLIGHT CONTROLS

Speed Brakes usage

- As much as possible, trade altitude with speed in order to delay speed brakes extension.
- Operate smoothly (especially near VMO/MMO).
- Keep an eye on VLS.
- In open descent only, unless for safety reason (e.g. overspeed recovery).
- Keep one hand on the lever, whenever using.

Flaps usage

Preferably, to be extended 10kt below VFE Next.

Flying below manoeuvring speed is acceptable as long as turbulence, wake turbulence and high bank angle are not a consideration.

When flying below manoeuvring speed, PM is to be notified in advance by PF.

Avoid premature extension of CONF 2 (i.e. do not use flaps as speed brakes, or on glideslope intercept remember to take into consideration the balloon affect).

8.0.10.6 LANDING GEAR

Brake Fan

Brake fans to be used as per aircraft manufacturer manuals, together with some good management.

Particular attention is required for the following:

- If brake fans are expected to be needed, they should be switched on prior to entering the gate. Switching on the brake fans at the gate should be avoided whenever possible.

8.0.10.7 WEATHER RADAR

Avoid radar usage on the apron.

To be used during the whole flight, regardless of time of the day and weather conditions.

Correct management of tilt and gain cannot be overemphasized, even on the Multiscan weather radars.

Looking outside is still an effective tool towards weather avoidance.

8.0.10.8 POWER PLANT

Reverse thrust - cool down

High thrust operations should be considered as reverse thrust other than IDLE.

The cool down period commences from the time reverse thrust is set to IDLE.

8.0.11 MANUAL FLIGHT

With the Commander's concurrence, and if conditions and regulations permit, pilots are encouraged to maintain their manual flying proficiency by manually flying the aircraft (A/THR either on or off).

Pilots should take into account the workload increase (consequently, monitoring capability decreases), suitable weather (VMC preferred), other traffic, tiredness, experience and any other situation that could affect the safety of the flight.

This should be communicated as part of the briefing.

Practice of Raw Data approaches is not recommended.

8.1 Flight Preparation

It is the Commander's responsibility to ensure that each flight is planned to meet all the requirements of:

- Safety
- Legality
- Commercial

Fulfilling this responsibility at the pre-flight stage requires the Commander, or a delegated qualified member of the flight crew, to conduct, review and check, as applicable, the following as a minimum.

Flight crew licence - each operating flight crew must carry a valid licence required to conduct the flight.

Pre-flight briefing - A review and discussion between the flight crew of the OFP, fuel requirements, weather information pertinent to departure, en route, destination and alternate airports, NOTAMS, technical information on aircraft status, and any applicable MEL/CDL.

When onboard - A review of the Aircraft Technical Log and the latest aircraft technical status. Review and discussion of the normal and any non-normal departure and approach procedures and aircraft performance. Ensure that loadsheet content is satisfactory and all weight and balance calculations are accurate, including the calculation and acceptance of any last minute changes (LMC).

A pre-flight inspection of emergency systems and equipment shall be conducted by the flight crew or delegated the cabin section only to the cabin crew prior to the first flight of the flight crew on an aircraft during a duty period;

- After a new cabin crew has assumed control of the aircraft cabin.
- After an aircraft has been left unattended by a flight crew or cabin crew for any period of time.

Brief the crew as to the current security status of the flight and how security incidents are to be handle.

Whenever jump seats are occupied - brief the occupants the location and use of safety equipment including seat belts, emergency exits, life jackets, and oxygen masks.

Establish effective communication between the flight crew and cabin crew. This should include:

- Guidelines for the use of the PA and interphone system.
- Discuss items that may be of concern during flight, such as turbulence.
- Discuss items of routine interest, such as flight time, altitude, route of the flight, and any other points of interest.

8.1.1 Minimum Flight Altitudes

The criteria upon which minimum safe altitudes are based, related to the track guidance facilities available. The minimum acceptable standards are as below. Such standards are modified (Chapter 8.1.1.3 and Chapter 8.1.1.4) when flying over high terrain or when the ambient air temperature is very low.

For general purpose application

- Where the terrain or obstacle is 5000 feet above mean sea level (AMSL) or lower, the minimum safe altitude is 1000 ft above the highest terrain or obstacle within 20 nm of the route centre line.
- Where the terrain or obstacle is higher than 5000 ft AMSL, the minimum safe altitude is 2000 ft or more above the highest terrain or obstacle within 20 nm of the route centre line.
- For flight in controlled airspace
- Where the track is well defined by two separate aids the minimum safe altitude is 1000 ft above the highest terrain or obstacle within 10 nm of the route centre line.
- Where the highest terrain or obstacle is higher than 5000 ft AMSL the minimum safe altitude is 2000 ft above the highest terrain or obstacle within 10 nm of the route centre line.
- When the sector length between navigational aids which define turning points is such that the aircraft could be more than 5 nm from the centre line, due to inherent errors in the system used to define an airway, the limit of protection must be increased by the extent to which the divergence exceeds 5 nm.
- For radar controlled flight within 25 nm of the aerodrome of departure or intended landing.
- The minimum safe altitude is 1000 ft above the highest terrain or obstacle within 5 nm of the intended track. Minimum safe altitudes within 25 nm of aerodromes are referred to as minimum sector altitudes.

8.1.1.1 Route Manual Published Minimum Altitudes

HKEA uses Route Manual published minimum altitudes as minimum safe altitudes since Route Manual calculations (as defined below) will give at least an equal standard to that required by the HKCAD.

The following minimum altitudes are published in the Route Manual en route, area and terminal charts.

- Minimum En-route Altitude (MEA) - This is the lowest published altitude between radio fixes that meets obstacle clearance requirements between those fixes and in many countries assures acceptable navigational signal coverage.
- Minimum Obstacle Clearance Altitude (MOCA) - This is the lowest published altitude in effect between radio fixes on VOR airways, off airway routes, or route segments which meets obstacle clearance requirements for the entire route segment.
- Route Minimum Off Route Altitude (MORA) - The MORA provides obstruction clearance 10 nm either side of the route centreline including a 10 nm radius beyond the radio fix reporting or mileage break defining the route segment. The altitude provides the same vertical obstruction clearance as that specified in Chapter 8.1.1.
- Grid Minimum Off Route Altitude (Grid MORA) - The Grid MORA altitude provides terrain and man-made structure clearance within the section outlined by latitude and longitude lines. The altitude provides the same

vertical clearance of terrain and obstruction as that specified in Chapter 8.1.1.

- Minimum Sector Altitude (MSA) - Altitude depicted on an instrument approach chart and provides 1000 ft of obstacle clearance within 25 nm radius from the navigational facility upon which the MSA is predicated. Different MSA may be promulgated for different sectors of the 25 nm radius circle.
- Minimum Vectoring Altitude (MVA) - The lowest MSL altitude at which an IFR aircraft will be vectored by a radar controller, except as otherwise authorized for radar approaches, departures and missed approaches.

8.1.1.2 Application of Route Manual Published Minimum Altitudes

MSA on flight plans are derived from the Grid MORA. The flight planning system assigns the highest Grid MORA that is crossed between any two points.

When within 25 nm of the aerodrome of departure or intended landing

- During normal or emergency manoeuvering within 25 nautical miles (or less if the MSA is predicated on a smaller radius) of the aerodrome of departure or intended landing, the minimum safe altitude shall be the MSA, or MVA as applicable, for the appropriate sector shown on the relevant chart.
- The minimum vectoring altitudes may be utilised only when the radar controller determines that an adequate return is being received from the aircraft being controlled. All radar instructions must be monitored by reference to other aids. It is the Commander's responsibility to ensure adequate terrain clearance.

When En route

- The maximum altitude obtainable with all power units operating or the appropriate stabilizing altitude with one engine inoperative, must be greater than the minimum safe altitude.
- Whilst maintaining the centerline of an airway or ATS route, during normal and emergency operations, the minimum safe altitude shall be the lowest of the:
  - Minimum En route Altitude (MEA)
  - Minimum Obstruction Clearance Altitude (MOCA); or
  - Route Minimum Off-route Altitude (Route MORA)
- When deviating from the centerline of an airway or ATS route during normal flight operations, the applicable minimum safe altitude shall be the Grid MORA containing the aircraft's position. Deviation from ATS routes is not permitted during normal flight operations where the Grid MORA is not published, unless a specific minimum safe altitude has been issued by the Flight Operations Department for that route and flight.
- If deviating from an airway or ATS route for emergency reasons (i.e. decompression or drift down), the minimum safe altitude shall be the Grid MORA.

8.1.1.3 Corrections To Minimum Safe Altitudes Over High Terrain

When the selected cruising altitude or flight level or one-engine inoperative stabilizing altitude is at or close to the calculated safe altitude and the flight is within 20 nm of terrain having a maximum elevation exceeding 2000 feet, the previously calculated MSA must be increased as follows in Table 8-1:

Table 8-1: Wind Correction To MSA

	Wind Speed in Knots			
Elevation of Terrain	0-30	31-50	51-70	Over 70
2000-8000 ft	500 ft	1000 ft	1500 ft	2000 ft
Above 8000 ft	1000 ft	1500 ft	2000 ft	2500 ft

Note: *Refer to Chapter 8.3.8.13 for guidance on the effect of mountain waves.*

8.1.1.4 Corrections To Minimum Safe Altitude For Low Ambient Surface Temperature

In conditions of extreme cold weather, the pilot should add the percentage correction values derived from the Correction to Minimum Safe Altitude for Low Ambient Surface Temperature given below to the published procedure altitude, including minimum sector altitudes and DME arcs, to ensure adequate obstacle clearance.

Unless otherwise specified, the destination airport elevation is used as the elevation of the altimeter source.

With respect to altitude corrections, the following procedures apply:

IFR assigned altitudes may be either accepted or refused. Refusal in this case is based on the Commander's assessment of the temperature effect on the obstruction clearance.

IFR assigned altitudes accepted by the Commander shall not be adjusted to compensate for the cold temperatures, i.e. if a Commander accepts “maintain 3000 ft” altitude corrections shall not be applied to the 3000ft.

Radar vectoring altitudes assigned by ATC are temperature compensated and require no corrective action by the Commander.

When altitude corrections are applied to a published final approach fix crossing altitude, procedure turn, or missed approach altitude, Commanders should advise ATC how much of correction is being applied.

Adequate allowances to calculated minimum altitudes must be made when the ambient temperature on the surface is much lower than that predicted by the standard atmosphere. When the ambient temperature is lower than International Standard Atmosphere (ISA) - 15°C, the following additions to minimum safe altitude must be made:

Table 8-2: Temperature correction to MSA

Lower than	ISA -15°C	Not less than 10%
Lower than	ISA -30°C	Not less than 20%
Lower than	ISA -50°C	Not less than 25%

8.1.2 Usability Of Aerodromes

8.1.2.1 General Policy

Every airport to be used for HKEA operations, either as destination airports, en route alternate airports, or destination alternate airports, will be assessed by Flight Operations, Engineering and Ground Services, and approved by the General Manager - Flying and the Director, Operations.

Before an airport is first utilized for operations as a destination or alternate, the GMF or DO shall approved it as adequate. In general, an operation to or from an airport will only be approved provided normal operating procedures can be used. Such procedures must apply not only to the approach / landing and takeoff phase, but shall also cover all forms of ground handling operations.

In approving an airport as adequate for HKEA operations, the following aspects shall be considered:

- Airport dimensions with regard to performance requirements;
- Runway, taxiway and apron dimensions with regard to surface maneuvering;
- Requirements of the HKEA aircraft type;
- The obstacle situation in the approach, missed approach and departure sectors;
- Instrument approach and departure facilities, and procedures;
- Lighting and communication facilities;
- Local conditions such as special weather situations, night flying restrictions or even political aspects that may affect operations;
- Availability of Air Traffic Services and Weather Reporting;
- Availability of rescue and fire fighting capability;
- Ground service facilities for fuelling, loading, maintenance, de-/anti-icing, catering,

General handling and the availability of immigration and customs authorities.

8.1.2.2 Airport Usability Assessment

The assessment of airport usability for planning and operational purpose is a combined effort by Flight Operations, Engineering and Ground Services Departments. Assessment is through a document study of AIP, Route Manual data provider published information, or a physical visit.

Note: *Operations into and out of uncontrolled airspace and/or airports are not permitted.*

The following aspects of an airport to be used as destination and destination alternates will be assessed by Flight Technical section of the Flight Operations Department:

- Airport dimensions
- Surface maneuvering and parking
- Runway characteristics
- Performance requirements
- Obstacle situation in the approach, missed approach and departure sectors
- State's cold temperature instrument procedure correction policy to evaluate the OAT effect on obstacle clearance
- If required HKEA will publish a minimum temperature for the approach on port page
- Navigation aids and procedures for arrival and departure, including establishing LVO minima for departure and arrival.
- Airport lighting
- Compliance with WGS-84
- Air traffic services and communications
- Weather reporting
- Rescue and fire fighting (RFF) capability

8.1.2.2.1 RFF Requirements

Table 8-3: RFF Category

Aircraft Type	Destination	Alternates
A320	RFF 6 RFF B (FAA)	RFF 4 RFF A (FAA)
A321	RFF 7 RFF C (FAA)	RFF 5 RFF A (FAA)

If rescue and fire fighting capacity is reduced by one category below the minimum level required, the airport may be used after due consideration of all relevant aspects, such as:

- Cargo / dangerous goods on board
- Airport condition
- Weather
- Aircraft status

The following aspects of an airport to be used as destination airport will be assessed by the Engineering Department

- Fuelling facilities
- Maintenance facilities
- De-/anti-icing facilities

The following aspects of an airport to be used as destination airport will be assessed by the Ground Services Department

- General ground handling
- Passenger and baggage handling

The catering section will assess catering facilities at the airport and determine whether catering will be uplifted from the airport.

8.1.2.3 Airport Categorization - Commander's Competence Qualification

All airports used by HKEA are categorized into one of the following three categories. The least demanding aerodromes are Category A. Category B and C are progressively more demanding aerodromes. The categorization of airports is in accordance with the parameters specified under each category given in this section. GMF and DO are responsible for categorizing all destination and alternate airports used by HKEA. Airport categories are published in the Route Manual.

Category A - An airport that satisfies all of the following requirements:

- An approved instrument approach procedure;
- At least one runway with no performance limited procedure for take-off and / or landing;
- Published circling minima not higher than 1000 feet above airport level; and
- Night operations capability.

Note: *For night operations at least runway edge lights, runway end lights and threshold lights must be ON.*

Category B - An airport that does not satisfy the Category A requirements or that requires extra considerations such as:

- non-standard approach aids and / or approach patterns; or
- unusual local weather conditions; or
- unusual characteristics or performance limitations; or
- any other relevant considerations including obstructions, physical layout, lighting etc.;
- Prior to operating into a Category B airport listed in the Route Manual, a Commander must be briefed, or self-briefed by means of company reference material, on the Category B airport(s) concerned and must sign a Certificate of Competency.

Category C - An airport that requires considerations additional to those for a Category B airport.

- Dependent on the airport categorization different aerodrome competence qualifications are required for the Pilot in Command. The period of validity of competence qualification is 12 months. The qualification may be re-validated during that period by operating to the aerodrome concerned.
- Prior to operating into a Category C airport, a Commander must be briefed and visit the airport as an observer, or be familiarized in a flight simulator approved by the HKCAD for that purpose.

8.1.3 Aerodrome Operating Minima

8.1.3.1 Concept Of Minima

The term "Minima" refers to the airport weather conditions and defines the minimum visibility (horizontal and vertical) prescribed for the taking off and landing of HKEA aircraft. The factors affecting minima are:

- **Aircraft capability** - given in the Aircraft Flight Manual, defines the lowest minima for which the aircraft has been certified;
- **State operating minima** - published on the AIP airport chart, established by the state in which an airport is situated;
- **Operator's minima** - HKEA minima's are: RVR 200m for take off and 300m/100ft for landing established by the HKCAD through the issuance of approved Operations Specifications. These minima may be the same as, but not lower than, the minima established above;
- **Crew minima** - represent the minima that a Commander is authorized to operate to, and is based upon the qualifications and experience of both pilots.

Note: *The Commander is authorized to exercise discretion and apply minima higher than those prescribed in this , when it is necessary to secure the safety of the aircraft.*

8.1.3.2 Route Manual Published Aerodrome Operating Minima

HKEA is approved to use NavTech Route Manual published takeoff and landing minima. The takeoff and landing minima are published on the relevant Navtech airport chart or the instrument approach chart and are dependent on aircraft category. ICAO classifies aircraft in categories according to the indicated airspeed at the threshold in the landing configuration at the maximum certified landing weight. For minima purpose HKEA aircraft are classified as below:

Table 8-4: Velocity at Threshold

Aircraft	V_{AT} Range	Category
A320	121 - 140 kts	**C**
A321	141 - 165 kts	**D**

8.1.3.2.1 Take Off Minima

The airport takeoff minima for each runway are published on the applicable NavTech chart.

At airports where no takeoff minima is published, Table 8-5 can be used to determine the RVR/Visibility required for takeoff.

Table 8-5: RVR / Visibility for Take-Off

Facilities	RVR/visibility (Note 3)
Nil (day only)	500 m
Runway edge lighting and/or centerline markings	250/300 m (Notes 1 and 2)
Runway edge and centerline lighting	200/250 m (Note 1)
Runway edge and centerline lighting and multiple RVR reports	150/200 m

Note: *1. The higher values apply to Category D aircraft.*

Note: *2. For night operations at least runway edge and runway end lights are required.*

Note: *3. The reported RVR/visibility representative of the initial part of the take-off run can be replaced by pilot assessment.*

Note: *The required RVR value must be achieved for all the relevant RVR reporting points with the exception given in Note 3 above.*

Note: *No cloud ceiling required.*

8.1.3.2.2 Authorized Non-Precision Approach (NPA)

Company authorized to carry out the following non precision approaches:

- LOC or LDA,
- SRA,
- RNP APCH, RNAV (GNSS),
- VOR or VOR/DME,
- NDB or NDB/DME

Note: *All the required navigation aids, as specified in the title of the approach charts, must be available during the approach*

Table 8-6: Lowest Minimum Decision Height (MDA) For Non Precision Approach

SYSTEM MINIMA	
FACILITY	LOWEST MDH
ILS (No glide slope) - LLZ	250 ft
SRA (term ½ nm)	250 ft
SRA (term 1nm)	300 ft
SRA (term 2 nm)	350 ft
RNP APCH / RNAV (GNSS)	250 ft
VOR	300 ft
VOR / DME	300 ft
NDB	300 ft
NDB / DME	300 ft

8.1.3.3 Visual Reference

8.1.3.3.1 Non-ILS / Non-Precision Approach

Pilots conducting a non-ILS approach (including non-precision) must use a stabilized constant descent profile during the final segment. This can be accomplished by using a Constant Angle Non-Precision Approach (CANPA) / Continuous Descent Final Approach (CDFA) technique. This allows for a descent from the MDA to the runway touchdown point at a normal rate of descent with minimal changes to the aircraft's flight path. The profile shall be stabilized in terms of vertical speed and vertical displacement from the normal approach path.

8.1.3.3.2 Non-Precision Approach

The basic MDA, RVR or Visibility for a non-precision approach is to be extracted from the appropriate Route Manual instrument approach chart.

Irrespective of the descent profile being flown, if the required visual reference is not attained at MDA, a missed approach is to be initiated.

Descent below the MDA is not permitted unless the required visual reference set out below has been attained and can be maintained.

8.1.3.3.2.1 Visual Reference Required

A commander may not continue an approach below the MDA, extracted from the relevant Route Manual Approach Chart, unless at least one of the following visual references for the runway of intended landing is distinctly visible and identifiable to the pilot:

- Elements of the approach lighting system;
- The threshold, or its marking, its lights or identification lights;
- The visual glide slope indicator(s);
- The touchdown zone, or touchdown zone markings or
- The touchdown zone lights;
- The runway edge lights.

8.1.3.3.3 Authorized Precision Approaches

Company authorized to carry out the following precision approaches:

- ILS Cat I
- ILS Cat II

Table 8-7: Minimum Decision Altitude / Height

ILS	CAT I	DA 200 ft AAL
ILS	CAT II	DH 100 ft (RA)

8.1.3.3.3.1 ILS CAT I

A Category I operation is a precision instrument approach and landing using ILS with a decision height not lower than 200 ft AAL and with a runway visual range not less than 550 m. Commanders are authorized to use the AOM published on the appropriate Route Manual Instrument Approach Chart for the runway of intended landing.

Decision Altitude (DA). HKEA CAT I operation is based on a barometric altimeter QNH setting, and therefore, the AOM to be used for a particular approach and landing will be the DA value published on the Route Manual ILS CAT I Approach Chart in use.

8.1.3.3.3.2 ILS CAT II

A CAT II operation is a precision instrument approach and landing using ILS with a decision height not lower than 100 ft AAL and with a runway visual range not less than 300 m.

Decision Height (DH). HKEA CAT II operation is based on radio altimeter, and therefore, the AOM to be used for a particular approach and landing will be the DH value published on the NavTech Route Manual ILS CAT II approach chart in use.

DH Decision Height is the wheel height above the runway elevation by which a go-around must be initiated unless adequate visual reference has been established and the aircraft's position and approach path have been assessed as satisfactory to continue the approach and landing in safety.

8.1.3.3.3.3 Visual Reference Required

A commander may not continue an approach below the DH, as published in the NavTech Route Manual, unless at least one of the following visual references for the runway of intended landing is distinctly visible and identifiable to the pilot:

Elements of the approach lighting system;

- The threshold;
- The threshold markings
- The threshold lights;
- The threshold identification lights;
- The visual glide slope indicator;
- The touchdown or touchdown zone markings;
- The touchdown zone lights;

- The runway edge lights;
- For CAT II at least three consecutive lights being the centreline of the ALS or TDZ lights or RCL or RL or a combination thereof is attained and can be maintained. The visual reference must include a lateral element of the ground pattern such as an ALS crossbar or landing threshold or TDZ barrette.
- If visual references become insufficient below the DH due to deteriorating weather conditions a missed approach must be initiated.

8.1.3.3.4 Conversion of MET Visibility to RVR

AOM are generally expressed in RVR. If RVR reports are not available, and only meteorological visibility is reported, then for straight-in instrument approaches only, the reported visibility may be converted according to the table below. The converted visibility (the equivalent RVR) may then be compared with the charted RVR values to determine whether the approach may be commenced or continued.

Table 8-8: Met Visibility / RVR Conversion Table

Conversion Table	RVR = Reported Met Visibility Multiplied by (Factor)	
Lighting Elements in Operation	Day	Night
High intensity approach lights (P1 or better) and High Intensity Runway lights	1.5	2.0
Any type of lighting installation other than above	1.0	1.5
No lighting	1.0	Not applicable

Table 8-8 shall not be used when calculating take-off minima when a reported RVR is available, or if state minima are published. (Refer to the ATC section in the Navtech Route Manual to determine whether state minima are published).

8.1.3.4 Failed or Downgraded Equipment - Effect on Landing Minima

Failed or downgraded equipment - effect on landing minima						
Failed or downgraded equipment	Effect on landing minima					
	CAT IIIB (No DH)	CAT IIIB	CAT IIIA	CAT II	CAT I	NPA
ILS Standby Transmitter	Not Allowed	RVR 200m	No Effect			
Outer Marker	No effect if replaced by height check at 1000 ft				No allowed except if replaced by height check at 1000 ft	NPA with FAF: No Effect unless used as FAF If FAF cannot be identified, (No method available for timing of descent) NPA cannot be conducted
Middle Marker	No Effect					No effect unless used as MAPT
RVR assessment system	At least 1 RVR value to be available on the aerodrome	On runways equipped with two or more RVR assessment units, one may be inoperative			No effect	
Approach lights	No Effect	Not allowed for operations with DH > 50 ft		Not Allowed	Minima as for NALS	
Approach lights except the last 210m	No Effect			Not Allowed	Minima as for BALS	
Approach lights except the last 420m	No Effect				Minima as for IALS	
Standby power for approach lights	No effect					
Edge lights, Threshold Lights and Runway End Lights	No Effect		Day: RVR 200m Night: RVR 300m	Day: No Effect Night: Not Allowed	Day: No Effect Night: Not allowed	
Centreline lights	Day: RVR 200m Night: Not allowed	Not Allowed	Day: RVR 300m Night: RVR 400m	Day: RVR 350m Night: RVR 550m (400m with auto-land)	No effect if F/D or auto-land, otherwise RVR 750m	No Effect
Centreline lights spacing increased to 30 m	RVR 150m		No effect			
Touch Down Zone lights	No Effect	Day: RVR 200m Night: RVR 300m	Day: RVR 300m Night: RVR 550m		No effect if F/D or auto-land, otherwise RVR 750m	No effect
Taxiway light system	No effect					

DH or MDA			Class of lighting facility			
			FAL	IALS	BALS	NALS
ft			RVR/CMV (m)			
200	:	210	550	750	1000	1200
211	:	220	550	800	1000	1200
221	:	230	550	800	1000	1200
231	:	240	550	800	1000	1200
241	:	250	550	800	1000	1300
251	:	260	600	800	1100	1300
261	:	280	600	900	1100	1300
281	:	300	650	900	1200	1400
301	:	320	700	1000	1200	1400
321	:	340	800	1100	1300	1500
341	:	360	900	1200	1400	1600
361	:	380	1000	1300	1500	1700
381	:	400	1100	1400	1600	1800
401	:	420	1200	1500	1700	1900
421	:	440	1300	1600	1800	2000
441	:	460	1400	1700	1900	2100
461	:	480	1500	1800	2000	2200
481	:	500	1500	1800	2100	2300
501	:	520	1600	1900	2100	2400
521	:	540	1700	2000	2200	2400
541	:	560	1800	2100	2300	2500
561	:	580	1900	2200	2400	2600
581	:	600	2000	2300	2500	2700
601	:	620	2100	2400	2600	2800
621	:	640	2200	2500	2700	2900
641	:	660	2300	2600	2800	3000
661	:	680	2400	2700	2900	3100
681	:	700	2500	2800	3000	3200
701	:	720	2600	2900	3100	3300
721	:	740	2700	3000	3200	3400
741	:	760	2700	3000	3300	3500
761	:	800	2900	3200	3400	3600
801	:	850	3100	3400	3600	3800
851	:	900	3300	3600	3800	4000
901	:	950	3600	3900	4100	4300
951	:	1000	3800	4100	4300	4500
1001	:	1100	4100	4400	4600	4900
1101	:	1200	4600	4900	5000	5000
1201 and above			5000	5000	5000	5000

8.1.4 VFR En route operating minima

VFR flights are generally not allowed except when authorized by the General Manager - Flying detailed in Chapter 8.3.1.

8.1.5 Presentation & Application of Aerodrome & En Route Operating Minima

The following requirements must be reviewed against reported and/or forecast meteorological information as well as crew qualification, ground equipment status, aircraft technical status, and dispatch using the MEL.

8.1.5.1 Take-off Minima

The minimum conditions for take-off in terms of Runway Visual Range (RVR) and, where required, cloud ceiling, as specified in Chapter 8.1.3 of this Manual must be met.

When the weather conditions are below landing minima take off is prohibited unless a suitable return airport (Take-off Alternate) is available.

8.1.5.2 Take-off Alternates

If it would not be possible to return to the airport of departure for meteorological, or any other reason a Take-off Alternate must be nominated. For an airport to be selected as a take-off alternate, the following conditions must be met, or taken into consideration, as applicable:

- The appropriate weather reports or forecasts or any combination thereof indicate that, during a period commencing one (1) hour before and ending one (1) hour after the estimated time of arrival at the airport, the weather will be at or above the applicable planning minima as specified in Chapter 8.1.5.5 of this Manual.
- When the only approaches available are non-precision and / or circling, the cloud ceiling must be taken into account.
- Any limitation related to one engine inoperative operations must be taken into account.
- The distance of a take-off alternate from the departure airport is not to exceed the specified maximum distance for the aircraft. For twin engine aircraft, the specified maximum distance may not be greater than a range of 1 hours flying time at the single-engine cruising speed for the aircraft.

Table 8-9: Maximum Distance For A Take-off Alternate

Aircraft Type	Maximum Distance for Take-off Alternate
A320	380 nm
A321	330 nm

8.1.5.3 Destination and Destination Alternate Airports

Destination Alternate Requirements

Where the weather reports or forecasts indicate that, during a period commencing 1 hour before and ending 1 hour after the estimated time of arrival at the destination aerodrome, the weather conditions will be better than those listed in the Table 8-10, the specified number and type of alternate airport(s) will be required. HKEA will normally select the option for the least number of alternates.

Note: *Current fuel policy requires at least 1 alternate until further notice.*

Table 8-10: Requirement for an Alternate Airport

Destination Airport Weather Conditions	Alternate Requirements
Weather conditions will allow the approach to be made under Visual Meteorological Conditions, • Ceiling, at or above 2500 feet, • Visibility, at or above 5000 m.	No Alternate (See note 1)
Weather conditions above landing minima	1 Alternate
Weather below landing minima, or no meteorological information is available for a destination airport	2 Alternates (See Note 2)

Note: 1. *There are at least two separate usable runways (runways not crossing), with at least one runway having an operational instrument approach procedure.*

Where a flight is operated without a destination alternate aerodrome, pre-flight planning must contain an amount of fuel that will to enable the aeroplane to fly for 15 minutes at holding speed at 1500ft above destination aerodrome in standard conditions to be carried in addition to the standard 30 minutes reserve. This quantity will be carried in the Extra Fuel.

Note: 2. *Fuel to reach the most distant alternate must be carried.*

Where an alternate airport is required by Table 8-10, the weather conditions at the selected alternate airports must be above planning minima specified in Chapter 8.1.5.5. The selected alternate airport must be specified on the operational flight plan.

For designated 'Remote' aerodromes, see Chapter 8.1.7.4 – Remote Aerodromes (Extended holding reserve)

8.1.5.4 En Route Alternate Airports

Airports selected as en-route alternates must have weather reports or forecasts or any combination thereof, that indicate that during the period commencing one (1) hour before and ending one (1) hour after the expected time of arrival at the airport, the weather conditions will be at or above the planning minima prescribed in Chapter 8.1.5.5 of this Manual.

8.1.5.5 Planning Minima for En Route and Destination Alternate Airports

Table 8-11: Alternate Minima

Type of Approach In effect at the applicable Alternate Airport	Planning Minima/RVR
CAT II	CAT I minima.
CAT I	Ceiling at or above non-precision minima
Non-precision	Ceiling at or above non-precision minima plus 200 ft / 1000 m.
Circling	Ceiling at or above circling minima plus 200 ft / 1000 m.

8.1.5.6 Visual and Circling Approach Minima

The minimum circle to land altitude and visibility is 800 FT AAL with visibility of 4600 M. The higher of these minima or the Route Manual chart published minima must be used for any circling approach.

Note: *Under adverse weather conditions, especially strong winds circling at 800 ft AAL may not be possible within the protected area.*

CAUTION: When circling minima is presented on an approach chart, only the approach protected area defined by the appropriate regulations may be shown on the applicable approach chart.

There may be significant obstacles or terrain in the area immediately outside that defined by the circling TERPS rules. Such obstacles would as a result, be off the edge of the approach chart and not be evident to the crew. It is therefore of the utmost importance that the aircraft remain within the protected area while circling.

8.1.5.7 Weather Information Monitoring

The flight crew shall monitor weather information before takeoff and whilst en route to ensure the flight can be safely initiated and completed, and without infringing company operating minima. In particular, weather information at the departure, destination and alternate airports shall be monitored. Update of weather meteorological conditions is available via VHF ATIS, VOLMET and En Route FIS. The use of ACARS system for weather monitoring should be minimised unless the VHF system is not accessible.

8.1.5.8 Flight Crew Operating Procedures

8.1.5.8.1 Takeoff

A Commander shall not:

- Commence a take-off; or
- Continue towards the planned destination airport; or
- Continue beyond the point from which a revised flight plan applies in the event of in-flight re-planning.

Unless

- Information is available indicating that the expected weather at the destination airport is at or above the applicable AOM, and / or
- The expected weather at the required alternate airport(s) is at or above the Planning Minima, and
- Wind and ambient conditions at the destination and/or the alternate airport(s) would permit a safe landing to be completed.
- The visibility or RVR at the departure airport is equal to or better than the published AOM for takeoff;

and

- The weather conditions at the departure airport are equal to or better than the applicable AOM for landing at that airport; or
- A suitable take-off alternate, as defined in Planning Minima in Chapter 8.1.5.2 of this Manual, is available and nominated.
- When the reported meteorological visibility is below that required for take-off and the RVR is not reported, a take-off may only be commenced if the Commander can determine that the actual visibility along the take-off runway is equal to or better than the required minimum.
- When no reported meteorological visibility or RVR is available, a takeoff may only be commenced if the Commander can determine that the visibility/RVR along the takeoff runway is equal to or better than the required minimum.

8.1.5.8.2 Approach and Landing

8.1.5.8.2.1 Commencement and Continuation of Approach

Crew qualification - A Commander is not authorized to commence an instrument approach unless both pilots at the controls fulfil training and, if applicable, recency requirements for the type and category of approach to be flown and minimums to be applied.

Onboard equipment - A Commander is not authorized to commence an instrument approach unless all onboard equipment for the type and category of approach and minimums applied is operating to at least the level required by OM-A and Route Manual.

Ground based equipment - A Commander is not authorized to commence an instrument approach unless all ground based equipment for the type and category of approach and minimums applied is operating to at least the level required by OM-A and Route Manual.

Approach Ban - A commander is authorized to commence an instrument approach regardless of the reported RVR / visibility, provided that the approach is not continued below 1000 ft above the aerodrome level or beyond the outer marker, or equivalent position, if the reported RVR / visibility is less than the applicable minima.

The approach may be continued below the DA or MDA and the landing may be completed provided that the required visual reference for the applicable approach contained in Chapter 8.1.3.3 of this Manual is established and can be maintained.

Where RVR is not available, equivalent RVR values may be derived by converting reported visibility in accordance with the Conversion Table in Chapter 8.1.3.3.4.

Note: *Approach and landing operations are not authorized when the airport landing minima is below 800 m unless RVR reporting is available for the runway of intended use.*

When the airport weather conditions are approaching the Cat I landing mimima for an ILS approach, a CAT II approach should be completed where permitted.

8.1.5.8.3 Speed

Maximum normal indicated airspeed is:

Table 8-12: Height Verses Airspeed

Altitude / Height	Maximum IAS (kts)
< 10000ft AAL	250 (except if higher speed is authorized by ATC)
< 3000 ft AAL	230 (On Arrival with no exceptions)

Note: *Unless operationally required ATC assigned speed reductions should be positively complied with. Crews should ensure speed reduction of 1 kt/sec, appropriate mode OP DES shall be used to ensure compliance.*

ATC assigned speeds shall be adhered to within ± 10 kts

8.1.5.8.4 Rate Of Climb And Descent

In terminal areas with high traffic density the rate of climb should not be excessive when approaching level-off in the vicinity of climbing traffic in order to minimize the occurrence of TCAS TA/RA due to high vertical closure rates.

Maximum normal descent rates and level off technique are:

Table 8-13: Height Verses Rate of Descent

Altitude (Above Aerodrome Level)	Maximum Rate of Descent (feet per minute)
0-1000	1000
1001-2000	1500
2001-3000	3000

Maximum level off using an altitude lead equal to 10 percent of the rate of descent (e.g., 200 feet lead at 2000 fpm) should be used.

In terminal areas with high traffic density the rate of descent should not be excessive when approaching level-off in the vicinity of climbing traffic in order to minimize the occurrence of TCAS TA/RA due to high vertical closure rates.

8.1.5.8.5 Simulated Flight Conditions

The simulation of flight instrument conditions and / or emergency situations that might affect the flight characteristics of the aircraft, or otherwise degrade safety standards, on HKEA passenger carrying flights is prohibited.

8.1.5.8.6 Runway Conditions For Takeoff And Landing

Runway conditions are DRY, WET or CONTAMINATED. These terms are defined in HKEA OM-B Performance Manual section 1 Introduction. Take-off and landing on CONTAMINATED runways with reported braking action (BA) POOR, NIL or UNRELIABLE is prohibited.

Take-Off

Aircraft performance limited takeoff weight must be assessed in accordance with the Performance Manual to ensure that the takeoff weight is permissible for the ambient and runway conditions at the departure airport.

Landing

Under normal circumstances on long runway free of contamination a simple comparison of LDA with a know reference distance may suffice. Landing performance and distance calculations are completed for all destinations and alternates during pre-operational route analysis.

Aircraft landing performance must be assessed to ensure that the landing weight is permissible for the landing ambient and runway conditions at the destination or alternate airports only in the following situations:

- Runway length is less than 2500m
- High Altitude Aerodromes Alternates
- A malfunction or failure of an aircraft system will affect landing performance
- Temporary shortening of runway length as advised by NOTAM
- Runway condition is reported as contaminated (standing Water, slush, snow, ice)

8.1.5.8.7 Crosswind Limitations For Takeoff And Landing

The maximum crosswind component permitted for takeoff and landing published in the aircraft FCOM and QRH.

HKEA maximum takeoff and landing tail wind component is 10kt.

8.1.5.8.8 Braking Action Reporting

Friction measurements or braking action estimation may be reported:

- In plain language by the tower
- By the routine weather broadcast
- By snowtam

When necessary, ATC issues the latest braking action report for the runway in use to each arriving and departing aircraft. Pilots should also be prepared to provide a descriptive runway condition report to ATC after landing.

8.1.6 Meteorological Information

The information provided in the Route Manual section “METEOROLOGY” highlights the different weather reports and their interpretation. The following additional rules shall be applied:

For planning purposes an airport shall be considered to be below minimum if:

- The RVR or meteorological visibility is below the applicable minimum; or

- The ceiling or vertical visibility is below the applicable decision height for; or
- The steady crosswind component exceeds the prescribed aircraft limitations.

Whenever a forecast contains meteorological conditions indicating “below minimum” at ETA that is prefixed by BECMG or TEMPO, the airport shall be considered below minimum. Conditions prefixed by PROB - either used alone or in conjunction with the prefix TEMPO - may be considered whenever judged operationally significant.

Meteorological charts are issued four times a day at fixed intervals, 00:00, 06:00, 12:00, and 18:00 UTC and are normally available at least 9 hours before such times. The following information are normally included in the pre-flight documentation for use during flight preparation or in flight:

8.1.6.1 Wind Charts

Usually the following wind charts are available and shall be used to determine the wind en-route and to the alternate(s):

Table 8-14: Upper Wind Charts

Pressure Surface	Approx Altitude	Flight Level
700 hPa	9,900 ft	100
500 hPa	18,300 ft	180
400 hPa	24,000 ft	240
300 hPa	30,100 ft	300
200 hPa	38,700 ft	390

Significant Weather Charts

These usually cover two layers, between:

FL 100 - FL 250 and

FL 250 - FL 450

Such charts may show en-route weather phenomena such as:

- Thunderstorms
- Tropical cyclones
- Severe squalls
- Moderate or severe turbulence
- Moderate or severe icing
- Types of clouds - particularly cumulonimbus type clouds
- Surface position of convergence zones
- Surface position of frontal systems
- Tropopause height
- Jetstreams
- Information on the location and times of volcanic eruptions

These charts shall be used to determine hazardous WX conditions en-route and to check route planning

Airport Meteorological Data

METARS and TAFS are produced by airport Met. Offices and used by Commanders to decide whether actual / forecast conditions would allow safe landing within the permitted AOM.

Non Routine Aeronautical Information

The following "non-routine" meteorological information is provided when applicable:

- As a SPECI - a special report amending a METAR;
- Amended TAFs;
- SIGMET (significant meteorological reports) when significant weather phenomena occur;
- Airport Warnings, such as micro bursts or windshear.

Full details of weather-reports and meteorological data presentation are available in the Route Manual under section "METEOROLOGY".

8.1.7 Determination of the Quantities of Fuel and Oil Carried

A flight shall not be commenced unless, taking into account the forecast operating conditions (meteorological conditions & expected delays), the aircraft carries sufficient fuel and oil, to ensure that it can safely complete the flight. It must include reserve fuel to provide for contingencies.

The company uses a computerised flight planning program that utilises fuel consumption data from the aircraft manufacturer and is updated by Flight Navigation Team taking consideration of report from Flight Data Programme.

The following fuel planning can be used dependent on routing, payload requirements and availability of alternates:

- Normal Planning
- Use of En route Alternate
- Use of Re clearance in-flight
- Remote Aerodrome

Note: *Mandatory Fuel*

Additional fuel required to ensure at any point along the planned route in the event of loss of pressurization or failure of a power unit:

- The flight to continue to a suitable aerodrome for landing
- To hold at 1,500ft over the aerodrome for 30 minutes and
- To carry out an approach and landing.

8.1.7.1 Normal Planning

The planned minimum fuel load (REQ) shall be the sum of:

- Taxi Fuel
- Trip Fuel

- Contingency Fuel
- Alternate Fuel
- Reserve Fuel (Hold)

Note: *Block Fuel is the REQ Fuel plus Extra Fuel and Tanker if required*

8.1.7.1.1 Taxi Fuel

Taxi fuel should not be less than:

- The standard fuel value specified in this
- The amount, expected to be used prior to take-off. Local conditions at the departure airport and APU consumption should be taken into account.

8.1.7.1.2 Trip Fuel

Trip fuel should include:

- Fuel for take-off and climb from airport elevation to initial cruising altitude / level, taking into account the flight plan departure route and flight plan arrival route, and
- Fuel from top of climb to top of descent, at the selected cruise speed; and
- Fuel from top of descent to the point where the approach is initiated, taking into account the expected arrival procedure; and
- Fuel for approach and landing at the destination airport.

8.1.7.1.3 Contingency Fuel

Contingency fuel is carried to account for any unforeseen factors that may have an influence on the fuel consumption of the aircraft to the destination aerodrome.

Contingency Fuel should not be less than:

- 5% of the planned Trip Fuel of the flight
- The Standard Fuel Value for Min. Contingency fuel specified in this section

8.1.7.1.4 Alternate Fuel

Alternate Fuel should be sufficient for:

- A missed approach from the applicable minima at the destination airport to missed approach altitude, taking into account the complete missed approach procedure; and
- Climb from missed approach altitude to cruising altitude / level;
- Expected routing to the destination alternate airport and
- Descent from top of descent to the point where the approach is initiated, taking into account the expected arrival procedure; and
- Executing an approach and landing at the destination alternate airport; and
- 5% of the above.

8.1.7.1.5 Reserve (Hold) Fuel

Reserve (Hold) Fuel must be sufficient to fly for 30 minutes at holding speed at 1500 ft above the alternate airport elevation in standard conditions, calculated using the estimated aircraft mass on arrival, at the alternate.

Note: *On the OFP, Reserve Fuel is defined as Hold Fuel.*

8.1.7.1.6 Extra Fuel

Extra fuel covers:

- Commander's discretion to deal with anticipated operational problems, Captain will consider temporary weather reductions when assessing their Extra Fuel requirements.

Note: *With a forecast TEMPO reducing the destination weather conditions to close to or below landing minimum or introducing other significant factors (e.g. heavy precipitation, wind gusts above 30 kt, TS) an additional 60 mins fuel is recommended (TEMPO forecasts can be triggered by a 10kt change in wind normally this alone would not require the additional fuel) This will provide the option to hold at the destination during the temporary reduction in weather conditions, preventing the diversion delay. Commercially holding is preferred than diverting to an alternate and/or*

This fuel should be calculated at holding speed at 1500 ft above airport elevation.

8.1.7.1.7 Fuel Tankering (CAT B)

Tankering is justified when the cost of the Tankered fuel, after allowing for increased burn-off as a result of the heavier weight, is less than the cost of the fuel at the destination. A cost penalty of approximately 3.5% per hour, dependant on aircraft type.

The decision on whether to tanker fuel for a specific route will be taken by Flight Operations management, based on the latest known fuel price. Occasionally Tankering may be required because of operational reasons such as a shortage of fuel at a particular airfield or to expedite turn round time. Tankering requirement for each sector will be shown on the Operational Flight Plan.

It is critical that the crew check the maximum allowable fuel before loading the required fuel.

The final traffic load may not be known when the crew is in dispatch. At the planning stage an approximate traffic load will be used based on 100 kg per passenger + an additional allowance of 500 kg to allow for “go-show” passengers and or freight. The Captain may refine the fuel order when the final traffic load is known, provided this will not delay the flight.

OFP prepared for the crew at Dispatch will reflect the estimated landing weight at destination when Tankering is commercially desirable. The additional fuel will be shown on the OFP as Extra Fuel.

The decision on whether Tankering is operationally wise remains the prerogative of the Commander. On-time departure should not be put at risk to maximize Tankering.

8.1.7.1.8 Company Plan Fuel for multiple runways aerodrome

The standardized fuel quantity for multiple runways aerodrome is calculated as to includes the following consideration when nearest operational and available alternate is selected.

- Holding 30minutes at 1500 feet, and;
- Manoeuvre during approach, and;
- Fuel to the next approach and landing, either runway.

The standardized fuel quantity for each aircraft type for planned arrival fuel as follow:

- A320-271N:2800kg
- A320-232SL:3000kg
- A320-232: 3200kg
- A321-231:3600kg

Destinations which multiple runways aerodrome will be implemented:

- Hong Kong
- Osaka Kansai
- Seoul Incheon
- Tokyo Haneda
- Tokyo Narita

8.1.7.2 Use Of En-route Alternate (ERA)

If required, the normally calculated contingency fuel can be reduced by the use of a nominated ERA as follows:

- 5% of the fuel required to fly from overhead or abeam the ERA to the destination may be substituted for the contingency element of Sector Fuel, but cannot be less than Min. Contingency given in the Standard Fuel Values.
- The ERA must be an adequate airport that is open. The forecast weather must indicate that flight conditions will be above the required AOM, and that a safe landing is assured at the time that the ERA may be used.

8.1.7.3 Use Of Re-clearance In-flight

When a flight cannot depart with the total fuel calculated in accordance with the normal planning formula, dispatch may be achieved by HKEA nominating a suitable airport en-route as the destination airport with the intention of obtaining a re-clearance in flight to the original destination, if the Commander is satisfied that:

- the nominated airport is both suitable and available with the weather forecast satisfactory for landing at the time it may be used; and
- the fuel onboard, when passing over or abeam the nominated airport en-route, is sufficient to satisfy the normal planning formula from that point to the original destination.

Note: *The OFP must show the name of the ERA used for planning purpose. The weather conditions for both the destination and ERA must be recorded.*

Note: *Some authorities are not willing to have airports in their jurisdiction nominated as a destination if that is not the intention, and this possibility must be considered.*

8.1.7.4 Remote Aerodromes (Extended holding reserve)

Where no suitable alternate airport is available, because the airport of intended landing is geographically isolated, the Alternate and Reserve fuel allowances will be replaced by a holding reserve related to statistical data on local weather conditions. The minimum will be two hours at normal cruise consumption.

Note: *Operations to remote/isolated aerodromes are not permitted.*

8.1.7.5 Standard Fuel Values

The following standard fuel will be used for flight planning purposes:

Table 8-15: Standard Fuel Values

Aircraft	Taxi	Min Contingency
A320/A321	200 kgs	300 kgs

The following taxi fuel policy is applied for the following AD for departure sector:

	Taxi Fuel
RJAA	300 kgs
VHHH (0700LT - 0900LT)	300 kgs

8.1.7.6 Oil

While the engine oil contents must be sufficient to cover the same elements as those for the fuel, it will be sufficient for the Commander to ensure that before the flight, the oil contents have been topped up in accordance with the manufacturer's recommendations, and that no excess oil consumption has taken place.

8.1.8 Weight And Centre Of Gravity Schedule

The Manager Operations Control Centre (MOCC), or his delegate, will raise the Weight and Centre of Gravity Schedule for each aircraft in accordance with the Basic Empty Weight and Balance Record provided by the Maintenance and Engineering Department. The following information is contained in the Weight and Centre of Gravity Schedule.

- Basic Empty Weight
- Dry Operating Weight and Index for revenue flight
- Dry Operating Weight and Index for training flight
- Weight and Index adjustment for non standard crew complement

Copies are distributed to FOCC, Engineering Office, the aircraft and concerned out-stations.

8.1.9 ATS Flight Plan

An ATS flight plan shall be submitted to the ATS unit of the departure station via appropriate communications for every flight in order to permit alerting services to be activated.

Two different methods are used for the submission of the ATS flight plan:

- ATS flight plan for individual flights - The ATS flight plan for an individual flight shall be submitted on an appropriate form designated by the state concerned and being generally identical or similar to the ICAO Model Flight Plan.
- Repetitive flight plan (RPL) - ATS flight plans for regularly operated flights with identical basic features may be submitted in the form of repetitive (“stored”) flight plans (RPL) provided relevant provisions are observed. The RPL are retained by air traffic services units for repetitive use for a series of individual flights.

Information submitted in the individual ATS flight plan shall be based on the Operational Flight Plan (OFP) for the respective flight. The RPL data shall refer to the standard planning data of the OFP concerned.

8.1.9.1 ATS Flight Plans For Individual Flights

The ATS flight plan will normally be completed and submitted by FOCC or out-station staff or handling agent.

In cases where the crew may have to plan a flight manually (at alternate after diversion), a manual ATS flight plan will be prepared and submitted by the crew.

A model ICAO Flight Plan Form and the instructions for its completion can be found in the Air Traffic Control section of the Route Manual.

Subsequent changes that take place between the time of submission and actual departure shall be reported to the appropriate ATS unit promptly, to facilitate the amendment of the filed flight plan.

Changes of one or more items listed below require the cancellation of a flight plan and the submission of a new flight plan:

- Date of flight
- Flight number
- Departure airport
- Destination airport
- Routing
- Any other item specified by the state concerned according to Regional Procedures
- A copy of the ATS flight plan or Dispatch Release Message shall be retained by the crew, and shall be placed in the Flight Document Envelope.

8.1.9.2 Repetitive Flight Plan

The repetitive flight plan list will contain only those flights that are operated on a regular basis, and will be used with prior arrangement with the ATS unit concerned.

FOCC is responsible for the contents of the repetitive flight plan lists and their timely distribution to the appropriate ATS units.

For every flight the responsible Operations Officer shall check that the actual flight operation corresponds to the information contained in the repetitive flight plan list. In the case of irregularities the flight dispatcher or the aircraft handling staff shall immediately inform the ATS reporting officer at the departure airport of the estimated off-block time, if exceeding the schedule time of departure by 30 minutes or more.

Note: *The changes listed below require the cancellation of the repetitive flight plan and the filing of an individual flight plan:*

- Different flight number
- Change of destination

8.1.10 Operational Flight Plan (OFP)

8.1.10.1 General

An operational flight plan (OFP) shall be prepared and used for all flights other than those intended to take-off and land at the same airport for such purposes as test flights and training.

The OFP shall be available to the flight crew during the flight preparation process and accessible to the flight crew during flight.

OFP shall always be prepared in duplicate; one shall always be signed by the Commander. An OFP prepared by the FOCC must show the name of the originator. A copy remains on ground with the Dispatch Office in HKG until the original working copy is returned with the flight document envelope.

8.1.10.2 OFP Fuel Calculation

OFP fuel is calculated in accordance with the Fuel Policy set out in Chapter 8.1.7.1.

The OFP takes the following into consideration:

- Estimated Zero Fuel Weight.
- The longest standard departure routing and the longest standard arrival routing in conjunction with the filed ATC flightplan and flight level that can be expected to be achieved.
- Expected cruise speed to be used en route.
- Forecast winds aloft.

Note: *If an OFP using estimated/forecast conditions cannot be prepared, a historic or generic OFP can be used. The historic/generic TOW and wind should be equal to or more limiting than the actual conditions. As a last resort the Commander can use appropriate data from FCOM to adjust the historic/generic fuel calculation.*

8.1.10.3 Alternate(s) Suitable For The Flight.

- Normally the nearest airport to destination will be used with realistic track distances must be taken into consideration.
- Weather conditions forecast to comply with alternate minima requirements.

Note: *A list of preferred alternate airports is published in the Route Manual.*

- MEL/CDL adjustments to fuel.

8.1.10.4 Fuel To Be Carried At Departure

The OFP required fuel plus any mandatory fuel included as EXTRA as per Chapter 8.1.7.1.6, is the minimum fuel to be carried on board at departure. However, the Commander has the final decision for the amount of fuel to be carried on each flight.

Whenever the Commander decides to carry a departure fuel that is different to the OFP total fuel he must be provide the reason(s) for his decision on the Flight Dispatch Release Message.

Unless the OFP contains fuel burn adjustment data, a new OFP should be prepared when the estimated/actual ZFW increased by more than 1000 kg and every attempt shall be made to present a new OFP in a timely manner. If the OFP contains fuel burn adjustment data the trip fuel must be increased accordingly. OFP FUEL BURN and REQUIRED must be amended by hand.

If fuel burn adjustment data is not available and a new OFP cannot be presented to the crew at the same time as the revised ZFW on the final loadsheet, at least the revised fuel based on revised ZFW must be communicated to the Captain in writing by an appropriate means (e.g. ACARS) in an appropriate format.

If the revised ZFW has increased by 3000 kg or more a new OFP must be calculated and provided to the crew. If the route remains unchanged, at least the revised fuel calculation, including the TAKEOFF, LANDING and ZFW weight figures must be provided to the crew via ACARS or station personnel.

8.1.10.5 In-flight Fuel And Time Management

The OFP should be used throughout the flight for the purpose of monitoring flight time, checking fuel consumptions and fuel remaining onboard. When actual flight time and/or fuel consumption of the flight is significantly different to that provided on the OFP Commanders should provide a report on the Company Voyage Report for investigation for the purpose of enhancing the accuracy of the OFP.

In-flight fuel management procedures are detailed in Chapter 8.3.7 of this manual.

8.1.11 Aircraft Technical Log

The Aircraft Technical Log is a system for recording defects and malfunctions discovered during operation, and details of all maintenance carried out on the particular aircraft between schedule visits to the maintenance facility.

All entries must be current they can not be erased [self-carbon pages]. Errors that are corrected shall remain readable and identifiable.

In addition it is used for recording operating information relevant to flight safety and contains maintenance data that the operating crew need to know. Accordingly, it includes:

- Crew member observation and remarks as a result of the aircraft operation;

- Aircraft technical condition, operation of engines, components and systems;
- Anomalies or incidents having an effect on airworthiness;
- Results of technical checks requested by the maintenance organization;
- Base and line station works performed by the maintenance organization;
- Details of rectification actions taken and any associated comments;
- Schedule maintenance checks performed;
- MEL technical tolerances proposed by the maintenance organization;
- Next schedule A-check;
- The Maintenance Log will also contain supplementary information;
- Details of Aircraft Deferred Defects (ADDs) that may affect the safe operation of the aircraft;
- Any other maintenance information;
- Next schedule Certificate of Release to service and Maintenance Statement after base maintenance.

8.1.11.1 Technical Status Of The Aircraft

The review of technical status of the aircraft is to be conducted in accordance with the operations manual for the aircraft type, and must include the exterior inspection that ensures the overall condition of the aircraft and its visible components and equipment are safe for flight, with at least the following.

- Safety critical items, including but not limiting to pitot/static ports, flight controls, aircraft structure integrity, must be checked;
- Any presence of frost, snow or ice on critical surfaces may necessitate the application of de-/anti-icing procedures;
- Check to ensure that any interior aircraft emergency equipment, such as oxygen, medical and emergency equipment, required for the flight is carried on board the aircraft and is functional.

The Minimum Equipment List (MEL) and the Configuration Deviation List (CDL) should be consulted whenever aircraft technical defects exist. Application of the provisions of the MEL/CDL is detailed in Operations Manual Part B Minimum Equipment List. Check AUTOLAND status if required for planned operation.

Note: *The Commander has the authority to reject an aircraft if, prior to each flight, he is dissatisfied with any aspect of airworthiness and maintenance*

8.1.11.2 Technical Log Book Procedures

Print All Log Entries In Black Ink

(1) Introduction of Sector Record Page

Each Tech Log Sector Record Page is a set of 3 sheets:

Top sheet is the Hong Kong Copy, white in color. It shall be removed in Hong Kong Base by MRO and must be returned to HKEA Technical Record (HKEA contracted Technical records storage function to HKEA).

Middle sheet is the Aircraft copy, pink in color. It shall be retained with the aircraft.

The third sheet is the Station Copy, blue in color. It shall be removed at the station by the outbound Captain, after acceptance of the flight, prior to departure and handed to the Ground Handling Agent or maintenance staff. The blue (Station) copies may be discarded after 3 months by local tech log handling agent.

Note: 1. *All entries must be made on the Sector Record Pages having all white, pink and blue copies.*

Note: 2. *Serial number of the technical log page is read as LP+DDMMYY + Log Page number (last two numbers). For example, if the entry made for the flight on LP00009 on 29 Apr 2011 (Departure Date), the log page reference shall be LP29041109.*

Note: 3. *For unmanned outstation (definition refer to EPM QA/B10): if maintenance actions are taken, a copy or photo of completed Tech Log Page shall be forwarded to HKEA MCC via email uoengmcc@hkexpress.com or other ways within 2 hours after departure, If no maintenance actions are taken, removed copies are not required to be faxed or scanned to HKEA MCC.*

Note: 4. *Maintenance Control Number (MCN) is especially applied for the ADD with CAT 'C' or above criteria & CDL items. And this is an MANDATORY procedure that provide a double assurance to avoid the omission of reporting the defects on time or in case a missing Log page occurred.*

For manned station:

(a) Any defect which is deferred under SRM or MEL (CAT C or above criteria), an MCN is required. EIC (Local or Outstation) shall contact MCC to report the defect and apply an MCC approved MCN for defect deferral. The MCN is required to be recorded into the TLB action column side by the EIC.

For un-manned station:

(a) If the defect can be deferred under SRM / MEL (CAT C or above) and the "M" procedure is required:

  (i) i). If a qualified local engineer is available and he/she is approved by QA to perform the defect rectification or defect deferral, the local engineer shall contact MCC to apply a One-Off authorization approval number and an MCN as well. Both numbers are required to be recorded into the TLB by the approved EIC. (Hence, One-off number record on the CRS column / MCN record on the action taken column).

  (ii) If approved engineer is NOT available and the Commander is satisfied with the aircraft airworthiness status after local mechanic and/or HKEA MCC support, the Commander may release the aircraft under Article 11 with Duty MCC Controller's guidance. The Commander shall ensure "Aircraft Dispatched under Article 11" is clearly recorded on TLB action taken column with the MCC issued MCN

(b) If a defect can be deferred under MEL and NO "M" procedure is required, the commander shall notify the defect details to MCC (It may report to FOCC via ACARS or contact MCC Maintenance Controller directly). Duty Maintenance Controller will issue an MCN for defect deferral after a technical risk assessment. The commander shall record the MCN into TLB action taken column with related MEL reference number as well. (Hence, no CRS is required under this situation).

(2) Completion Instruction

The responsibility for making the applicable entry is as shown in these instructions. Pilot or certifying staff shall make entries correctly. The entries should be current and made with non-erasable black or blue ink in legible CAPITAL LETTERS and numerals. Error shall be crossed-out with a single line but not shaded or using correction fluid. Signature and UTC date shall be marked to each correction made.

(3) Special attention on tech log completion

Certificate of Release to Service

(a) When a maintenance action is done on the aircraft or any defect is reported in the Tech. Log, a CRS is required to be made for releasing the aircraft to service.

(b) A CRS shall be signed off by an authorized certifier from an approved AMO.

(c) For a sector with no defect reported or "Nil Further" is written on the 'Defect Description' column, a CRS signature is NOT required.

(d) CRS is required for every oil servicing. Tech log entry shall be detailed.

(e) In some circumstances, ‘Computer Reset’ for certain systems (Refer to the QRH) is allowed being performed by the pilot / commander during aircraft operation. To aim for better reliability analysis, the action should be reported and documented as “For Info Only” on the ‘Defect Description’ column, a CRS signature is NOT required but ‘Noted’ should be written on the ‘Action Taken’ column followed by his/her initial.

Completion Instruction

Cross Ref no.	Description and Action	Responsibility
1	AIRCRAFT REGISTRATION Fill in the aircraft registration mark.	Pilot or Certifying Staff
2	FLIGHT NUMBER PREFIX Record flight reference 2 letter prefix. “UO”.	Pilot or Certifying Staff
3	FLIGHT NUMBER Record flight reference number.	Pilot
4	FROM-STATION-TO Record the three-letter designator of the departure and arrival airport.	Pilot
5	DEPARTURE DATE Record the departure UTC date of the actual flight.	Pilot
6	FLIGHT TIME a. Blocks Off: Record the UTC Block Off time. b. Take Off: Record the UTC take off time. c. Landing: Record the UTC landing time. d. Blocks On: Record the UTC time on blocks.	Pilot
7	SATIS RNP: Record “Y” (for satisfactory) or “N” (for not satisfactory) of RNP carried out on this flight. If RNP is not satisfactory, enter the reason in the defect block (Item 14) of the Sector Log. If not performed, record “Ø”.	Pilot
8	FLIGHT CYCLE a. Landings: Record the number of landings of this flight. If aircraft ground returns, record “Ø”. b. Go-Arounds: Record the number of go-arounds of this flight. If not performed, record “Ø”. c. Touch and Go: Record the number of touch and go for this flight. If not performed, record “Ø”.	Pilot
9	EDTO Entry “Y” for an EDTO Sector which was successfully completed. Entry “N” for an EDTO Sector which was NOT successfully completed. Entry "Ø" for an NON EDTO Sector.	Pilot
10	SATIS AUTOLAND Record “Y” (for satisfactory) or “N” (for not satisfactory) of autoland carried out on this flight. If autoland is not satisfactory, enter the reason in the defect block (Item 14) of the Sector Log. If not performed, record “Ø”.	Pilot
11	DEFECT ITEM Enter the defect item number	Pilot or Certifying Staff

Cross Ref no.	Description and Action	Responsibility
12	PIREP ENTRY If defect is raised by pilot, enter “Y” into the PIREP entry box.	Pilot
13	ATA (DEFECT) Record ATA Chapter and sub-chapter number of defect	Pilot or Certifying Staff
14A	DEFECT DESCRIPTION Record details of the specific defect. Note: i. Pilot must make an entry of “Nil Further” if there are no defects on completion of the flight. ii. Defect entries made by Certifying Staff must be prefix by “MAINT ENTRY:” iii. MOR related entries made by Certifying Staff must be prefix by “MOR RAISED:” iv. Under normal circumstance, the Certifying Staff who made the entries shall clear the defect and record the actions taken on block 18. v. If the defect is raised and action taken by same certifying staff, it is accepted that certifying staff blanks “RAISED BY” column and signs his name on block 23 only. In the case where the defect cannot be rectified by the original Certifying Staff, he shall identify himself by putting down his name/ authorization number and signature on the “RAISED BY” of block 14. vi. Whenever any aircraft blanks and locking devices are been installed by pilot, authorized handling agency or an approved maintenance staff, an open entry must be made in this column, identifying the details of installation, e.g. 2 ea pitot head covers, 1 ea standby pitot head cover, 2 ea static port covers, 1 ea nose landing gear lock pin and 2 ea main landing gear lock pins installed. vii. In certain situations, the commander / pilot may carry out computer reset for designated aircraft systems approved in the Quick Reference Handbook (QRH). The reset action should be documented in the ‘Defect Description’ column as “For Info Only”.	i-v. Pilot or Certifying Staff vi. Pilot, Handling Agency or Certifying Staff
14B	Certifying staff must tick the box of “ENGINE COWL DOORS HAVE BEEN OPENED” if engine cowl doors have been opened.	Certifying Staff

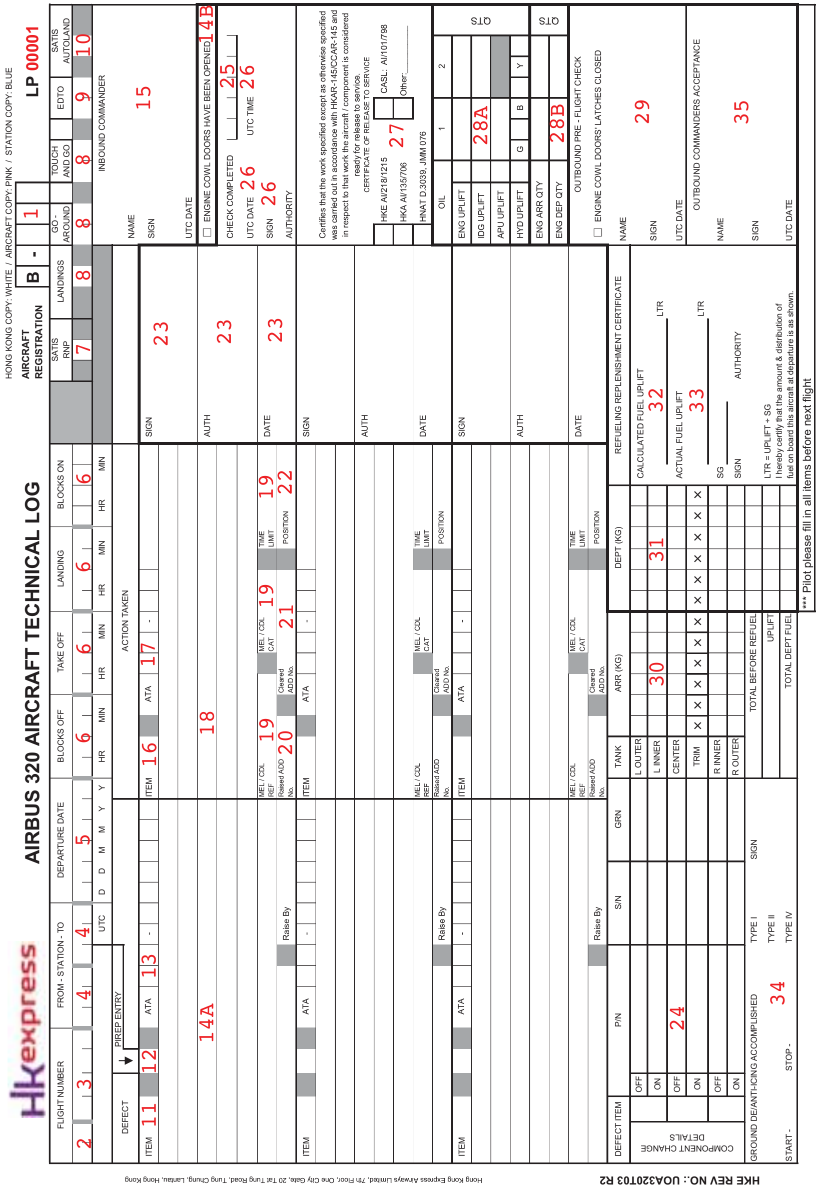
Cross Ref no.	Description and Action	Responsibility
15	INBOUND COMMANDER NAME/SIGN/UTC DATE The inbound commander must sign and date this block signifying satisfactory completion of the flight and the relevant documentation carried out including all Tech Log entries and defect details. Note: It is acceptable that the outbound commander signs the "Inbound Acceptance" column of Tech log on behalf of the inbound commander If "nil further" is documented on inbound sector.	Pilot
16	ACTION TAKEN ITEM Record defect rectification item number corresponding to the defect.	Pilot or Certifying Staff
17	ACTION TAKEN ATA Record ATA chapter and sub-chapter number of defect rectification or deferral. For example - "36-20".	Pilot or Certifying Staff
18	ACTION TAKEN Details of the action taken to rectify defect or details of reasons for acceptable deferral. Record "NOTED" on this block if "NIL FURTHER" is raised on block 14. Note: Upon the removal of aircraft blanking and locking devices annotation and initial should be made in this column, including the following wordings: "ALL INSTALLED AIRCRAFT BLANKS AND LOCKING DEVICES HAVE BEEN PROPERLY REOMOVED". No CRS is required. Note: if applicable, an MCN is required to be entered into this column; details refer to the procedure item 1 iv). Note[2]: In the case of computer reset is performed by the commander / pilot i.a.w. QRH and is written as "For Info Only" in item 14A 'Defect Description', the item should be actioned by writing "Noted" together with the initial in item 18 'Action Taken" to complete the open item.	Pilot or Certifying Staff
19	MEL/CDL REF, MEL/CDL CAT, TIME LIMIT Enter MEL reference, MEL category of acceptable deferred defect and time limit. Note: if applicable, an MCN is required to be entered into this column; details refer to the procedure item 1 iv).	Pilot or Certifying Staff
20	Raised ADD No. Enter ADD number when ADD is raised.	Certifying Staff

Cross Ref no.	Description and Action	Responsibility
21	Cleared ADD No. Enter ADD number when ADD is cleared after defect rectification.	Certifying Staff
22	POSITION Enter position of defect rectification.	Certifying Staff
23	SIGN/AUTH/UTC DATE Enter signature of the Certifying Staff, his/her approval stamp and UTC date of the work carried out.	Certifying Staff
24	COMPONENT CHANGE DETAILS Defect Item: Enter defect rectification item number corresponding to the defect. P/N Off: Record part number of component removed during defect rectification. P/N On Record part number of component installed during defect rectification. S/N Off: Record serial number of component removed during defect rectification. S/N On: Record serial number of component installed during defect rectification. GRN: Record goods release number of installed component during defect rectification/part replacement. For some maintenance organization, B/N (Batch Number) may replace the GRN. Note: If component is robbed from other HKEA aircraft and installed directly, the GRN shall be written as the aircraft registration of robbed component.	Certifying Staff
25	CHECK COMPLETED Enter the Check completed: 36HR Check/ Weekly Check	Certifying Staff
26	SIGN/UTC DATE/UTC TIIME (CHECK COMPLETED) Enter signature of the Certifying Staff, his/her approval stamp and UTC date for certificate of release to service performing task in block 25.	Certifying Staff

Cross Ref no.	Description and Action	Responsibility
27	CERTIFICATE OF RELEASE TO SERVICE Tick the applicable box of the maintenance organization approval number of the Certifying Staff's organization performing the task. Note: If the maintenance organization approval number is not pre-listed in this column, please write the maintenance organization approval number in "other".	Certifying Staff
28	FLUID UPLIFT: QTS (QUARTS) a. Record the quantity of uplifted oil. Engine, Hydraulic, IDG and APU oil quantity indication after uplift. Enter "Ø" if there is no uplift.	a. Certifying Staff
	b. ENG ARR/DEP QTY: Record the quantity of engine oil for aircraft arrival and departure.	b. Pilot
29	OUTBOUND PRE-FLIGHT CHECK NAME/SIGN/UTC DATE Record name, signature of pilot and UTC date that carried out the Pre-flight Check prior to next flight. The outbound pilot should double check engine cowl doors' latches close status if maintenance staff opened the engine cowl and tick item 14 B column.	Pilot
30	ARR (KG) a. Record the fuel quantity of each tank	Pilot
31	DEPT (KG): a. Record total fuel quantity before refuel (KG) b. Record the fuel quantity for each tank after refuel (KG) c. Record total departure fuel (KG) d. Calculated Uplift (KG)	Pilot
32	CALCULATED FUEL UPLIFT Enter in Liter (LTR) of the calculated fuel uplifted (LTR). Note: This value is equals to the uplifted fuel in Kilogram (KG) ÷ SG (Specified Gravity).	Pilot
33	Actual Fuel Uplift: Record in Liter (LTR) of the actual fuel uplifted, as reported by the refueller.	Pilot

Cross Ref no.	Description and Action	Responsibility
34	GROUND DE-ICING/ANTI-ICING ACCOMPLISHED a. Start: Record time of de-icing process commences b. Stop: Record time of de-icing process completed c. Type I/ Type II/ Type IV: Record type of de-icing fluid and mixture applied d. Sign: Signature of the pilot who supervises the de-icing/anti-icing treatment Note: i) No CRS is required after completion of de-icing and anti-icing work. ii) Pilot is responsible to inspect for ice, snow or frost and initiate request to the Ground Handling Agency to perform de-icing/anti-icing task. iii) Pilot must carry out final inspection of the aircraft after completion of de-icing/anti-icing treatment, prior sign for Flight Acceptance. iv) Pilot is responsible to determine the necessity to re-apply the de-icing/anti-icing treatment against Holdover time. v) In the case de/anti-icing is performed after A/C push back, pilot should record the required de/ anti-icing information on next technical log page associated with the outbound sector. Note: local de/anti-icing agency should keep their own de/anti-icing records at least 2 weeks. The records should include but not limited: Start Time, Stop Time, Fluid Type Applied.	Pilot
35	OUTBOUND COMMANDERS ACCEPTANCE The outbound commander's name, signature and date accepting aircraft status in terms of the de-icing/anti-icing, fuel and oil uplift and defect rectification.	Pilot

Figure 8-1: HKEA Aircraft Technical Log Divider



Technical Log Book Procedures

(1) In the event that maintenance action is required, due to various reasons that warrants a Technical Log entry and no qualified maintenance personnel is a available, contact FOCC and request assistance from HKEA Maintenance Control Centre (MCC).

(2) If the aircraft cannot be dispatched, it may be possible after consultation with HKEA MCC, to apply the conditions of AN(HK)O Article 11 which allows the Commander of the aircraft to fly the aircraft to HKG or a station where a Certificate of Release to Service (CRS) can be issued, provided that he/she is satisfied it is airworthy. Therefore a Commander may not sign the CRS block in the Aircraft Technical Log.

(3) If maintenance actions are required, the assistance of a suitable maintenance organization should be sought to perform the work.

(4) BEFORE FLIGHT the Commander shall enter the defect details and any work performed in action column of the Aircraft Technical Log and SIGN within the Action Taken block. The entry should state 'Aircraft dispatched under Article 11'. The Commander may not sign the CRS Aircraft Technical Log block. He shall also raise a log item in HKG, stating that work has been performed and no CRS issued.

(5) If a suitable maintenance organization is unavailable, it will be necessary for an appropriately qualified maintenance engineer to be dispatched from Hong Kong with the spares, to perform the work and to issue a CRS.

(6) Note: EXAMPLE OF EVENTS THAT REQUIRE MAINTENANCE ACTION

- HARD LANDING	- LIGHTNING STRIKE
- SEVERE TURBULENCE	- EXTREME DUST
- OVERWEIGHT LANDING	- BIRD STRIKE
- HIGH ENERGY STOP	- TAIL STRIKE
- LANDING GEAR/FLAP/SLAT MMO/VMO OVERSPEED	

(7) Bird Strike Handling

HKEA MCC should be contacted for the dispatch procedure.

It is acceptable to carry out the bird strike inspection by flight crew and dispatch an aircraft to maintenance base following a bird strike provided that:

(a) No solid remains are found anywhere on the aircraft; and

(b) There is no obvious damage to the aircraft

The pilot can make the following entry in the aircraft technical log (ATL) prior to dispatch to maintenance base:

DEFECT column: “Suspected Bird strike on [location]”

ACTION TAKEN column “No solid remains or obvious damage found. Aircraft dispatched under Article 11 [signature]”

HKEA MCC/FOCC should be informed in order to prepare cleaning/ inspection of aircraft upon arrival.

Upon arrival at maintenance base the pilot must make the following entry in ATL:

DEFECT column: “Suspected Bird strike on [location]”

ACTION TAKEN column: To be completed by certifying staff

The Commander shall submit the "Report of Flight with Uncertified Rectification of Defect" (Form HKE_QA_017) to FOCC within 3 days after the flight.

Note: Submitting through the flight envelope is **no longer encouraged**.

(8) Autoland

At stations where qualified engineering support is not available, the flight crews should follow the applicable procedures to enter defect and 'NO AUTOLAND' into the defect column of Technical Log. Put 'NO AUTOLAND' placard at the location specified in MEL.

The pilot can make the following entry in the aircraft technical log (ATL) prior to dispatch to maintenance base:

DEFECT column: "NO AUTOLAND"& "Defect description"

ACTION TAKEN column: "Dispatch under [Reference]" &[Signature]

HKEA MCC / FOCC should be informed in order to update the autoland status and prepare inspection of aircraft upon arrival.

Upon arrival at maintenance base the pilot must make the following entry in ATL:

DEFECT column: "Defect description"

ACTION TAKEN column: To be completed by certifying staff

If the subject fault has not been positively identified and rectified but the fault does not occur currently, after consulting with HKEA MCC, the Maintenance Engineer may request an Autoland to be conducted by making a Technical Log entry 'Please carry out an Automatic Landing'. The pilot should enter 'NOTED', sign and record the result after autoland.

(9) FOCC: (852) 3906 7582 or 3906 7583 / (852) 6558 8679

HKEA MCC (24 Hrs): (852) 2296 1455 / (852) 6508 6496

Duty engineer: (852) 9381 9026

8.1.11.3 Autoland Maintenance Practices

Responsibilities

(1) Maintenance Engineers

Maintenance engineers are responsible for ensuring that aircraft are downgraded and upgraded in accordance with the MEL paragraph and/or the relevant AMM procedure, when an Autoland defects occurs.

(2) HKEA Maintenance Control Center (MCC)

HKEA MCC is responsible for monitoring of repetitive defects and for ensuring that any Auto Flight/Autoland defect is cleared in a timely manner.

(3) Technical Services Division

Technical Services Division is responsible for the modification status, configuration, component and performance monitoring

Procedures - Downgrading

(1) Autopilot status downgrading will originate from:

(a) An aircraft technical log report of a fault or a fault found during maintenance on the Auto Flight System or any other system fault, associated with Autoland as detailed in the MEL that cannot be rectified.

(b) An incoming technical log report that states that an attempted Autoland was unsuccessful and defects cannot be positively identified and rectified and a review of recorded fault history indicates an aircraft system problem.

(c) As instructed by HKEA MCC (when an intermittent Autoland defect is identified).

(2) If, for any of the above reasons, the Autoland status is required to be downgraded, the aircraft technical log ADD will state actual Autoland status, i.e. “NO AUTOLAND” etc.

Remarks: Autoland Status is limited to any current ADD's relating to Autoland.

(3) All AP/FD and non AP/FD system deficiencies affecting Autoland Status are detailed in the MEL. ADD must be raised in respect to any such system deficiency and clearly state the quoted Autoland status as detailed in the MEL. The aircraft is to remain downgraded until the subject system deficiency is positively rectified and the upgrading procedure is completed.

(4) Maintenance Engineers must advise HKEA MCC whenever the Autoland is downgraded. HKEA MCC will update FOCC with the aircraft detailed status.

Procedures - Upgrading

(1) Conditions to be met before a downgraded ADD can be cleared are:

(a) The subject fault has been positively identified and rectified and that no other system fault associated with Autoland has occurred. This is accomplished by referral to the aircraft technical log and by accomplishment of the associated FMGC or LRU test, to ensure that the Autoland is serviceable.

And

(b) All related AP/FD systems ground testing requirements have been successfully completed, as per the appropriate AMM.

(2) Autoland that has been downgraded by instruction from HKEA MCC can only be upgraded after the fault has been positively identified and rectified and certified by an appropriately Authorized engineer and HKEA MCC is informed.

(3) The Maintenance Engineer must advise MCC whenever the Autoland upgraded. MCC will update FOCC with the aircraft Status.

(4) If the subject fault has not been positively identified and rectified but the fault doesn’t occur currently, after consulting HKEA MCC, the Maintenance Engineer may request an Autoland to be conducted by making an Aircraft Technical Log entry “Please carry out an Automatic Landing”. On successful completion of the Autoland, the downgraded ADD can be cleared with Autoland status upgraded.

8.1.12 List Of Documents, Forms And Additional Information To Be Carried

The following documents (or copies) and manuals shall be placed on board:

- Certificate of Registration (original)
- Certificate of Airworthiness (original)
- Noise Certificate (original)

- Air Operator Certificate (Copy)
- Aircraft Radio Licence (original)
- Third Party Liability Insurance Certificate (Copy)
- Aircraft Search Check List.

Company Operations Manuals comprising of:

- Airplane Flight Manual
- OM-A
- Route Manual Airway Manual and En-route charts
- Route Manual Supplement Guides
- Flight Crew Operational Notices
- Aircraft specific operations manuals and checklist
- Normal Checklist
- Quick Reference Handbook
- Flight Crew Operations Manuals
- Performance Manual
- Minimum Equipment List
- Cabin Crew Operations Manual
- Safety and Emergency Procedures Manual
- Technical Log
- Cabin Log

8.1.12.1 Voyage Report

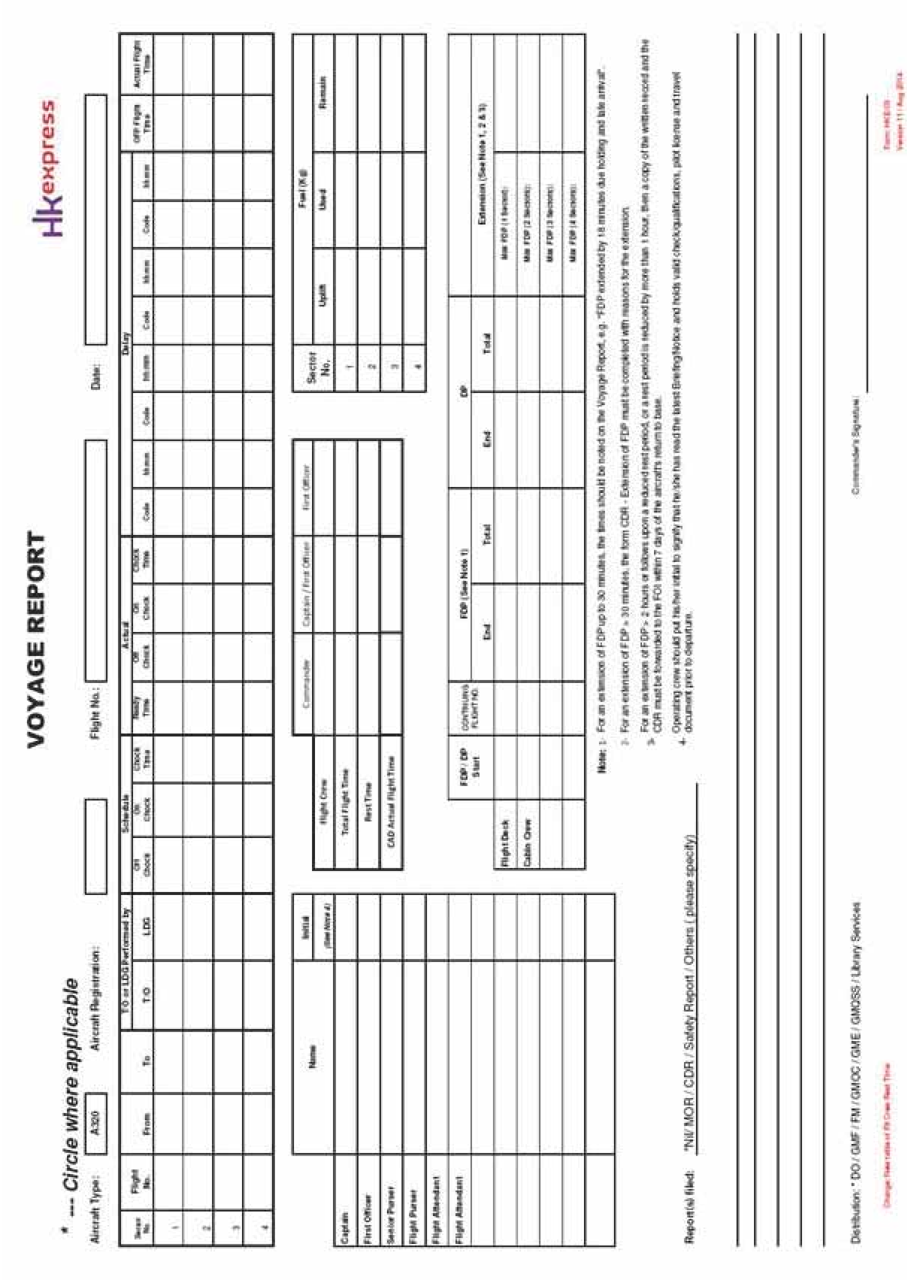
The Voyage Report is one of the flight documentations provided to the flight crew for each flight. The Voyage Report provides pertinent information with regard to the flight including date, flight number, aircraft registration, departure and destination ports, names of operating crew members and their assigned duties. A sample of the Voyage Report is contained in this . Whenever any of this information are missing, or requires amending due to last minute changes, the crew should ensure updated information is log down on the Voyage Report.

Commander is also required to record the actual ATD and ATA and flight time on the Voyage Report.

The Voyage Report also serves as a communication tool between the flight crew and the Flight Operations management on any operational issues regarding the flight. Any relevant observations and comments regarding the flight should be noted down on the Report. These observations and comments will be forwarded to the relevant s and departments for further action to enhance operational efficiency and safety.

Comments written on the Voyage Report do NOT replace any Safety report or Maintenance Log requirements.

Figure 8-2: Sample Voyage Report



VOYAGE REPORT

* --- *Circle where applicable*

Aircraft Type: A320 Aircraft Registration: Flight No.: Date:

Sector No.	Flight No.	From	To	T/O or LDG Performed by: T/O	LDG	Schedule: Off Chock	On Chock	Chock Time	Actual: Ready Time	Off Chock	On Chock	Chock Time	Delay: Code	hh:mm	Code	hh:mm	Code	hh:mm	Code	hh:mm	OFP Flight Time	Actual Flight Time
1																						
2																						
3																						
4																						

	Name	Initial (See Note 4)
Captain		
First Officer		
Senior Purser		
Flight Purser		
Flight Attendant		
Flight Attendant		

	Commander	Captain / First Officer	First Officer
Flight Crew			
Total Flight Time			
Rest Time			
CAD Actual Flight Time			

Sector No.	Fuel (Kg): Uplift	Used	Remain
1			
2			
3			
4			

	FDP / DP Start	CONTINUING FLIGHT NO.	FDP (See Note 1): End	Total	DP: End	Total	Extension (See Note 1, 2 & 3)	
Flight Deck							Max FDP (1 Sector):	
Cabin Crew							Max FDP (2 Sectors):	
							Max FDP (3 Sectors):	
							Max FDP (4 Sectors):	

Note:
1. For an extension of FDP up to 30 minutes, the times should be noted on the Voyage Report, e.g. "FDP extended by 18 minutes due holding and late arrival".
2. For an extension of FDP > 30 minutes, the form CDR - Extension of FDP must be completed with reasons for the extension.
3. For an extension of FDP > 2 hours or follows upon a reduced rest period, or a rest period is reduced by more than 1 hour, then a copy of the written record and the CDR must be forwarded to the FOI within 7 days of the aircraft's return to base.
4. Operating crew should put his/her initial to signify that he/she has read the latest Briefing Notice and holds valid check/qualifications, pilot license and travel document prior to departure.

Report(s) filed: *Nil/ MOR / CDR / Safety Report / Others (please specify)

Distribution: * DO / GMF / FM / GMOC / GME / GMOSS / Library Services

Commander's Signature:

8.1.12.2 Dispatch Release Message (DRM)

The Dispatch Release Message (DRM) is a summary message prepared by FOCC that contains important information regarding the dispatch of the flight. The DRM captures:

- Dispatcher's notes to crew
- Fuel summary
- ATS plan information
- Aircraft performance limit weight
- Aircraft technical status regarding ADD and PADD

When signing the Dispatch Release Message the Commander is acknowledging that he/she is qualified to operate on the destination in accordance to the Operations Policy Manual. This includes at least the following:

- Category B and C airport requirements
- Route qualification requirements
- Compliant to the Company Fuel Policy
- Compliant with Airport Weather Planning requirements

Figure 8-3: Sample Of Dispatch Release Message

HONG KONG EXPRESS AIRWAYS DISPATCH RELEASE MESSAGE

AA. GENERAL

UO / 6-Jun ETD: Z ACFT TYPE: A320 REG: B-LP
DEP: VHHH DEST: ALTN:

BB. DISPATCHER NOTES TO CREW

FUEL POLICY: CAT
CHECK TECH LOG BOOK FOR OTHER MEL ITEMS

CC. FUEL SUMMARY (KGS)

	PLANNED	REVISED BY PILOT	REASON FOR CHANGE
TOTAL FUEL (KGS)			
TAXI FUEL (KGS)	200		
T/O FUEL (KGS)	-200		
TRIP FUEL (KGS)			

EST ZFW KGS

**MAX ALLOW FUEL 19005 KGS LIMITED BY MAX FUEL CAPACITY **

MAX FUEL BASED ON MAX STRUCTURAL TOW. PERFORMANCE LIMITATIONS NOT CONSIDERED.

DD. ICAO FPL

(FPL-HKE 0 -
- A320/M -
- VHHH 0000
-
-
- PBN/A1B1C1D1L1O2 NAV/GPSRNAV DOF/ REG / BLP 0
EET/ SEL /
PER/C OPR/HONG KONG XP RMK/TCAS CALLSIGN HONG KONG SHUTTLE)

FF. CREW INFO

PILOT IN COMMAND:

COCKPIT: CABIN: POSITIONING CREW : 0 COCKPIT CREW
0 CABIN CREW

TOTAL: 0
*COCKPIT OBS COUNT IN COCKPIT
*RIDING ENGINEER AND CABIN OBS COUNT IN CABIN

RELEASED BY HKE DISPATCH:

PILOT IN COMMAND SIGNATURE:

HKE DISPATCH: (852) 2296 1421 FAX: (852) 2759 6450
HKE ABO: (852) 3559 1560 FAX: (852) 3559 1567

8.1.12.3 Delay Codes

For the purpose of analyzing delay reasons so as to achieve continuous improvement in on-time-performance, when departure delays exceed 3 minutes, an appropriate two-letter delay code together with the number of minutes should be recorded on the voyage report.

Figure 8-4: Delay Codes

HONGKONG EXPRESS

Delay Codes

1. **OTHERS**
   OA NO GATE/STAND AVAILABILITY DUE TO OWN AIRLINE ACTIVITY

2. **SCHEDULES**
   SG SCHEDULE GROUND TIME LESS THAN DECLARED MINIMUM GROUND TIME

3. **PASSENGER AND BAGGAGE**
   PD LATE CHECK-IN, acceptance after deadline
   PL LATE CHECK-IN, congestion in check-in area
   PE CHECK-IN ERROR, passenger and baggage
   PO OVERSALES, booking errors
   PH BOARDING, discrepancies and paging, missing checked-in passenger
   PS COMMERCIAL PUBLICITY/PASSENGER CONVENIENCE, VIP, press, Ground meals and missing personal items
   PC CATERING ORDER, late or incorrect order given to supplier
   PB BAGGAGE PROCESSING, sorting, etc.
   PW REDUCED MOBILITY. Boarding/ Deboarding of passengers with reduced mobility

4. **CARGO AND MAIL**
   CD DOCUMENTATION, errors, etc
   CP LATE POSITIONING
   CC LATE ACCEPTANCE
   CI INADEQUATE PACKING
   CO OVERSALES, booking errors
   CU LATE PREPARATION IN WAREHOUSE

5. **MAIL ONLY**
   CE DOCUMENTATION, PACKING, etc
   CL LATE POSITIONING
   CA LATE ACCEPTANCE

6. **AIRCRAFT AND RAMP HANDLING**
   GD AIRCRAFT DOCUMENTATION LATE/INACCURATE, weight and balance, general declaration, pax manifest, etc
   GL LOADING/UNLOADING, bulky, special load, cabin load, lack of loading staff
   GE LOADING EQUIPMENT, lack of or breakdown e.g. container pallet loader, lack of staff
   GS SERVICING EQUIPMENT, lack of or breakdown, lack of staff, e.g. steps
   GC AIRCRAFT CLEANING
   GF FUELLING/DEFUELLING, fuel supplier
   GB CATERING, late delivery or loading
   GU ULD, lack of or serviceability
   GT TECHNICAL EQUIPMENT, lack of or breakdown, lack of staff, e.g. pushback

7. **TECHNICAL AND AIRCRAFT EQUIPMENT**
   TD AIRCRAFT DEFECTS
   TM SCHEDULED MAINTENANCE, late release
   TN NON-SCHEDULED MAINTENANCE, special checks and/or additional works beyond normal maintenance schedule
   TS SPARES AND MAINTENANCE EQUIPMENT, lack of or breakdown
   TA AOG SPARES, to be carried to another station
   TC AIRCRAFT CHANGE, for technical reasons
   TL STAND-BY AIRCRAFT, lack of planned stand-by aircraft for technical reasons
   TT LATE SIGNING OF TECHNICAL LOG BY GROUND ENGINEER
   TV SCHEDULED CABIN CONFIGURATION/VERSION ADJUSTMENT

8. **DAMAGE TO AIRCRAFT**
   DF DAMAGE DURING FLIGHT OPERATIONS, bird or lightning strike, turbulence, heavy or overweight landing, collision during taxiing
   DG DAMAGE DURING GROUND OPERATIONS, COLLISION (other than during bird or lightning strike, turbulence, heavy or overweight landing, collision during taxiing), loading/off-loading damage, contamination, towing, extreme weather conditions

Delay Codes P.1 of 2 Rev 2, 4 Feb 2014

Delay Codes (Cont)

HONGKONG EXPRESS

Delay Codes

9. EDP / AUTOMATED EQUIPMENT FAILURE
- **ED** DEPARTURE CONTROL
- **EC** CARGO PREPARATION / DOCUMENTATION
- **EF** FLIGHT PLANS
- **EO** OTHER AUTOMATED SYSTEM format

10. FLIGHT OPERATIONS AND CREWING
- **FP** FLIGHT PLAN, late completion or change of, flight documentation
- **FF** OPERATIONAL REQUIREMENTS, fuel, load alteration
- **FT** LATE CREW BOARDING OR DEPARTURE PROCEDURES, other than connection and standby (flight deck or entire crew)
- **FS** FLIGHT DECK CREW SHORTAGE, sickness, awaiting standby, flight time limitations, crew meals, valid visa, health documentation, etc
- **FR** FLIGHT DECK CREW SPECIAL REQUEST, not within operational requirements
- **FL** LATE CABIN CREW BOARDING OR DEPARTURE PROCEDURES, other than connection and standby
- **FC** CABIN CREW SHORTAGE, sickness, awaiting standby, flight time limitations, crew meals, valid visa, health documentation, etc
- **FA** CABIN CREW ERROR OR SPECIAL REQUEST, not within operational requirements
- **FB** CAPTAIN REQUEST FOR SECURITY CHECK, extraordinary

11. WEATHER
- **WO** DEPARTURE STATION
- **WT** DESTINATION STATION
- **WR** ENROUNTE OR ALTERNATE
- **WI** DE-ICING OF AIRCRAFT, removal of ice and/or snow, frost prevention excluding unserviceability of equipment
- **WS** REMOVAL OF SNOW, ICE, WATER AND SAND FROM AIRPORT
- **WG** GROUND HANDLING IMPAIRED BY ADVERSE WEATHER CONDITIONS

12. AIR TRAFFIC FLOW MANAGNEMENT
- **AT** ATFM DUE TO ATC EN-ROUTE DEMAND/CAPACITY, standard demand/capacity problems
- **AX** ATFM DUE TO ATC STAFF/EQUIPMENT EN-ROUTE, reduced by industrial action or staff shortage or equipment failure, extraordinary demand due to capacity reduction in neighboring area.
- **AE** ATFM DUE TO RESTRICTION AT DESTINATION AIRPORT, airport and/ or runway closed due to obstruction, industrial action, staff shortage, political unrest, noise abatement, night curfew, special flights
- **AW** ATFM DUE TO WEATHER AT DESTINATION

13. AIRPORT AND GOVERNMENT
- **AA** NO GATE / STAND AVAILABLE DUE TO OWN AIRLINE ACTIVITY
- **AS** MANDATORY SECURITY
- **AG** IMMIGRATION, CUSTOMS, HEALTH
- **AD** RESTRICTIONS AT DESTINATION AIRPORT, airport and/or runway closed due to obstructions, industrial action, political unrest, noise abatement, night curfew, special flights
- **AM** RESTRICTION AT AIRPORT OF DEPARTURE WITH OR WITHOUT ATFM RESTRICTION, including Air Traffic Services, start-up and pushback, airport and/ or runway closed due to weather
- **AF** AIRPORT FACILITIES, parking stands, ramp congestion, lighting, buildings, gate limitations, etc
- **AR** RESTRICTIONS AT DEPARTURE AIRPORT, airport and/or runway closed due to obstructions, industrial action, political unrest, noise abatement, night curfew, special flights

14. REACTIONARY
- **RL** LOAD DOCUMENTATION, awaiting load from another flight
- **RT** THROUGH CHECK-IN ERROR, passenger and baggage
- **RA** AIRCRAFT ROTATION, late arrival of aircraft from another flight or previous sector
- **RS** CABIN CREW ROTATION, awaiting cabin crew from another flight
- **RC** CREW ROTATION, awaiting crew from another flight (flight deck or entire crew)
- **RO** OPERATIONS CONTROL, rerouting, diversion, consolidation, aircraft change for reasons other than technical

15. MISCELLANEOUS
- **MI** INDUSTRIAL ACTION WITH OWN AIRLINE
- **MO** INDUSTRIAL ACTION OUTSIDE OWN AIRLINE, excluding A.T.S.
- **MX** This code shall be used only when it is clear that a reason cannot be matched to a code above (explain in SI section e.g. Bravo Whisky)

Delay Codes P.2 of 2 Rev 2, 4 Feb 2014

8.1.12.4 Aircraft Library

The aircraft library contents are listed in the document folder onboard the aircraft and extracted here for information.

Cockpit

- Certificate of Airworthiness
- Certificate of Registration
- Noise Certificate
- Aircraft Radio License
- Certificate of Maintenance Review
- Normal Checklist
- Technical Log
- Quick Reference Handbook
- Delay Codes
- Weight & Balance Schedule
- Aircraft Library Contents List
- Airplane Flight Manual
- OM (A)
- OM (B) A320 SOP
- OM (C) Route and Aerodrome Instructions and Information (RAII)
- Flight Crew Operating Manual (GEN/DSC Tome 1 & 2)
- Flight Crew Operating Manual (PRO/LIM/OEB/FCBUL Tome 1 & 2)
- Flight Crew Operating Manual (PER Tome 1)
- Minimum Equipment List A320
- Flight Crew Techniques Manual A320
- OM(B) Performance Manual A320
- Flight Crew Operational Notices
- Ground Operations Manual
- Navtech-Flight Information Supplement Booklet
- Navtech-Asia, Australasia & Pacific Supplement Booklet
- Document Folder
- IATA Emergency Response Guidance
- Navtech Route Manual - Destinations & Alternates
- Navtech Route Manual - En route

Cabin

- Cabin Attendants Operational Notices
- Safety and Emergency Procedures Manual
- Cabin Log
- PA Handbook

Document Folder Contents

Certificates

- Copy of CAD - AOC (a certified true copy)
- Copy of CAD - Approval of Low Visibility Operations (LVO) if applicable
- Copy of CAD - Approval of Operation of Flights at RVSM Levels
- Copy of CAD - Approval of Required Navigational Performance (RNP) Operations
- Copy of CAD - Approval of ADS-B Out
- Copy of CAD - Approval of Navigation Equipment
- Copy of CAD - Approval of Aircraft Approaches Using Global Positioning System (GPS)
- Copy of Third Party Liability Insurance Certificate
- Copy of CAAC CCAR 129 Operations Specifications
- Copy of Foreign AOC of Vietnam
- Copy of USA DOT FAA Ops Spec 88HF
- Copy of CAAP Certificate

Forms

- Voyage Report
- Commander's Discretion Report - Extension of Flying Duty Period/Flying Hours
- Commander's discretion Report - Reduction of Rest
- Report of Flight with Un-certified Rectification of Defects
- AIRPROX (AIRMISS) Report
- Bird Strike Reporting Form
- Airline Safety Report (ASR)
- FOQA Form

Information

- Bomb Search Sheet
- Normal Checklist
- Technical Log Book Procedures
- Jump Seat Briefing Card
- Flight Level Allocation In China / RVSM

8.1.12.5 Aircraft Documentation Onboard Checklist (Sample)

AIRCRAFT DOCUMENTATION ONBOARD CHECKLIST	Hkexpress Flight Operations Page 1 of 3

Aircraft Type:________________ Aircraft Registration: ________________
Date of Check:________________

The following documentation should be present in the cockpit onboard the aircraft during the aircraft documentation onboard check. ***Please tick where appropriate, checked items are most up to date and in good condition, especially binders.***

CAPTAIN'S SIDE				
	Documentation	**CPY #**	**Revision**	**Checked**
1	CAPTAIN'S NAV TECH DESTINATION		Rev no:	
2	CAPTAIN'S NAV TECH ALTERNATE		Rev no:	
3	CAPTAIN'S NAV TECH ENROUTE		Rev no:	
4	QRH		Rev date:	
5	NORMAL CHECKLIST	N/A	Rev date:	
6	FLIGHT LEVEL ALLOCATION IN CHINA/RVSM	N/A	Rev date:	
7	**CLIPBOARD**			
	a) AIRCRAFT LIBRARY CONTENT LIST	N/A		
	b) WEIGHT AND CENTRE OF GRAVITY – DELAY CODES	N/A	Weight - Rev no.: Rev date: DLY - Rev no.: Rev date:	
	c) VHHH PERFORMANCE CHART			
8	MINIMUM EQUIPMENT LIST – MEL		Issue date:	
	- MEL TOME 1			
	- MEL TOME 2			
	- CAD Compliance Letter	N/A	Issue date:	

FIRST OFFICER'S SIDE				
	Documentation	**CPY #**	**Revisions**	**Checked**
1	FIRST OFFICER'S NAV TECH DESTINATION		Rev no:	
2	FIRST OFFICER'S NAV TECH ALTERNATE		Rev no:	
3	FIRST OFFICER'S NAV TECH ENROUTE		Rev no:	
4	QRH		Rev date:	
5	NORMAL CHECKLIST	N/A	Rev date:	
6	FLIGHT LEVEL ALLOCATION IN CHINA/RVSM	N/A	Rev date:	
7	NAVTECH FLIGHT INFORMATION SUPPLEMENT	N/A	Date:	
8	NAVTECH ASIA, AUSTRALASIA & PACIFIC SUPPLEMENT	N/A	Date:	
9	PERFORMANCE MANUAL		Rev: /Rev date:	
10	ICAO EMERGENCY RESPONSE GUIDANCE FOR AIRCRAFT INCIDENTS INVOLVING DANGEROUS GOODS	N/A		
11	GROUND OPERATIONS MANUAL		Rev: / Rev date:	

MANUAL BAG				
	Documentation	**CPY #**	**Revisions**	**Checked**
1	FLIGHT CREW OPERATING MANUAL-FCOM		Issue date:	
	i) FCOM GEN/DSC TOME 1			
	ii) FCOM GEN/DSC TOME 2			
	iii) FCOM PRO/LIM/OEB/FCBUL TOME 1			
	iv) FCOM PRO/LIM/OEB/FCBUL TOME 2			
	v) FCOM PER TOME 1			
2	FLIGHT CREW TECHNIQUES MANUAL - FCTM		Issue date:	
3	AIRPLANE FLIGHT MANUAL – AFM			
	- AFM		Issue date:	
4	FLIGHT CREW OPERATION NOTICE – FCON		Rev	
5	OM-A		Rev: / Rev date:	
6	OM-B Airbus A320		Rev: / Rev date:	
7	OM-C ROUTE AND AERODROME INSTRUCTIONS AND INFORMATION		Rev: / Rev date:	

Continued on next page…

Rev date: 21-MAR-2017 Rev 06 HKE-LIB-011A

AIRCRAFT DOCUMENTATION ONBOARD CHECKLIST

Flight Operations
Page 3 of 3

CERTIFICATE FOLDER				
	Certificate	CPY #		Checked
1	*COPY OF AOC*			
2	*COPY OF CAD – APPROVAL OF OPERATION OF FLIGHTS AT RVSM LEVELS*			
3	*COPY OF CAD – APPROVAL OF REQUIRED NAVIGATION PERFORMANCE (RNP) AND AREA NAVIGATION (RNAV) OPERATIONS*			
4	*COPY OF CAD – APPROVAL OF OPERATION OF AUTOMATIC DEPENDENT SURVEILLANCE – BOARDCAST (ADS-B) (OUT)*			
5	*COPY OF CAD – APPROVAL OF NAVIGATIONAL EQUIPMENT*			
6	*COPY OF CAD – APPROVAL OF LOW VISIBILITY OPERATIONS (LVO)*			
7	*COPY OF THIRD PARTY LIABILITY INSURANCE CERTIFICATE*			
8	*COPY OF CAAC-CCAR-129 OPERATIONS SPECIFICATIONS*			
9	*COPY OF FOREIGN AIR OPERATOR'S CERTIFICATE OF VIETNAM*			
10	*COPY OF PCAB APPROVAL OF CHARTER FLIGHTS / CAAP ENTRY EXIT PERMIT / CAAP FOREIGN AOC VALIDATION CERTIFICATE / SPECIAL LANDING PERMIT (A320-214; A320-232 ONLY)*			
	a) CERTIFICATE OF AIRWORTHINESS	N/A	by ENM	
	b) CERTIFICATE OF REGISTRATION	N/A	by ENM	
	c) NOISE CERTIFICATE	N/A	by ENM	
	d) APPROVAL OF AIRCRAFT RADIO INSTALLATION	N/A	by ENM	
	e) AIRCRAFT STATION LICENSE	N/A	by ENM	
	f) WEIGHT & BALANCE SCHEDULE	N/A	by ENM	
	g) WEIGHING REPORT	N/A	by ENM	

LIBRARY DOCUMENT FOLDER				
	Documentation	CPY #	Revision	Checked
1	**FORMS**			
	1. Voyage Report	N/A	Version:	
	2. Commander's Discretion Report – Extension of Flying Duty Period/Flying Hours	N/A	Rev	
	3. Report of Flight with Uncertified Rectification of Defects	N/A	Rev	
	4. Commander's Discretion Report – Reduction of Rest	N/A	Rev	
	5. AIRPROX (AIRMISS) Report	N/A	Rev	
	6. Bird Strike Reporting Form	N/A	Rev	
	7. Airline Safety Report (ASR)	N/A	Rev	
	8. FOQA Form	N/A	Rev	
	9. Vibration Reporting Sheet	N/A	Rev	
2	**INFORMATION**			
	a) Bomb Search Sheet	N/A	Rev	
	b) Tech Log Book Procedure			
	c) Weight and Centre of Gravity and Delay Code	N/A	Weight - Rev no.: Rev date: DLY - Rev no.: Rev date:	
	d) FLIGHT LEVEL ALLOCATION IN CHINA/RVSM (QTY X 2)	N/A	Rev date:	
	e) NORMAL CHECKLIST (QTY X 2)	N/A	Rev date:	

Continued on next page…

Rev date: 21-MAR-2017 Rev 06 HKE-LIB-011A

AIRCRAFT DOCUMENTATION ONBOARD CHECKLIST	Flight Operations Page 3 of 3

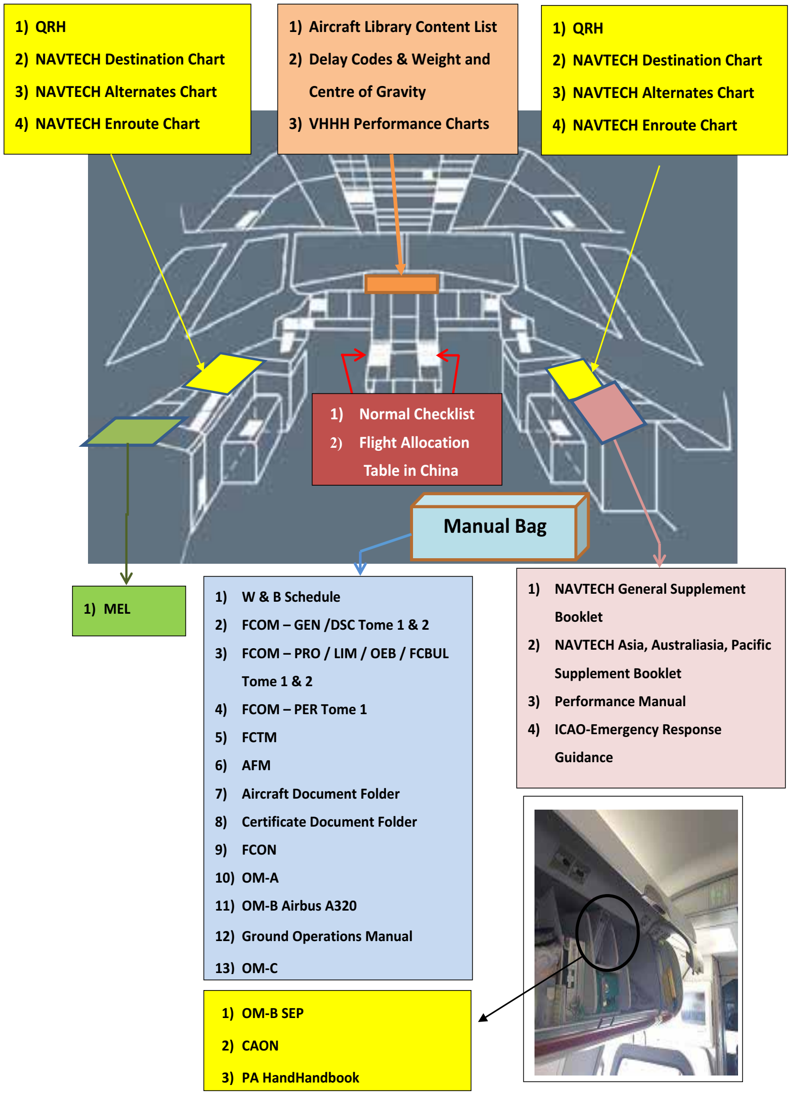
PAX CABIN				
	Documentation	**CPY #**	**Revisions**	**Checked**
1	Safety Equipment & Emergency Procedures Manual			
2	Cabin Attendants Operational Notices (CAON)			
3	PA Handbook			

COCKPIT			
	Item	**Checked**	**Remarks:**
1	Clipboard		QTY X 1
2	Hangers		QTY X 3
3	Safety vest		QTY X 2
4	Raincoat		QTY X 1

Checked and verified by:____________________________ on this date:______________

Rev date: 21-MAR-2017 Rev 06 HKE-LIB-011A

Hong Kong Express – A320 / A321Cockpit Layout



Rev date: 13-Feb-2018 Rev 00

8.2 Ground Handling

8.2.1 Fuelling Procedures

8.2.1.1 Fuelling / Defuelling - General

The detailed procedures for fuelling and defuelling HKEA aircraft are contained in the Ground Operations Manual (GOM) section 7.1 – Ramp Safety in Aircraft Handling.

Primary risk during fuelling is fuel spillage due to leakage or overfilling. Consequently an increased risk of fire persists; therefore all possible measures must be taken to prevent an ignition.

Spilled fuel shall be removed or dried up immediately, before passengers are boarded. If fuel spillage occurs during passenger boarding, boarding must be stopped immediately and may only continue once the spilled fuel is removed.

8.2.1.2 Aircraft Defuelling Procedures In Hong Kong

Aircraft defuelling is permitted at the Passenger and Cargo Apron if:

(1) The defuelling amount does not exceed 10 tonnes (13,000 litres). For defuelling in excess of 10 tonnes, the aircraft must be repositioned to a remote stand.

(2) All defuelling operations shall seek approval from the Apron Control Centre at Tel: (+852) 2910 1108

Defuelling operations are subject to the following conditions in Chapter 8.2.1.3.

8.2.1.3 Fuelling / Defuelling With Passengers Embarking, Onboard Or Disembarking

Before fuelling with passengers embarking, on board or disembarking the following precautions are to be observed:

Ensure that this procedure is permitted by the Airport Authorities;

Ensure “Fire Cover” is available;

The Commander, or in his absence a member of the flight crew, is to inform the senior cabin crew member when fuelling is about to take place and when it has been completed;

Weather radar and HF radio equipment must be switched off;

Cabin attendants, passengers and ground staff must be informed that refuelling is about to take place and they must not smoke, operate any electrical switches or produce any means of ignition;

Cabin attendants are to be briefed that, throughout the fuelling operation, all passenger doors that remains open with steps in position is to have a cabin attendant in attendance.

Any passenger door(s) where steps are not available is to be closed with a cabin attendant positioned at the door(s) throughout the refuelling process;

When an airbridge is in use the passenger door(s) is to be open and a cabin attendant positioned at the door(s) throughout the refuelling process;

The ground area beneath the exit and the slide deployment area should be kept clear of all external obstructions. Access to, and exit from, areas where other slides may be deployed should also be kept clear;

Cabin attendants assigned for specific doors are to remain in their vicinity, capable of responding immediately to an evacuation order;

Inside the aircraft all aisles, exit areas and exit access areas should be kept clear of all obstructions.

All cabin doors should be disarmed.

- Until refuelling is completed the “NO-SMOKING” signs must be illuminated together with sufficient interior lighting to enable emergency exits to be located. “FASTEN SEAT BELT” sign is to be switched OFF and passengers should be briefed to unfasten their seat belts.
- Ground servicing activities and work within the aircraft, such as catering and cleaning should be conducted in such a manner that they do not create a hazard or obstruct exits.
- Two-way communications is to be maintained, by interphone or other suitable means, between the person supervising the refuelling and a member of the flight crew who shall remain in the cockpit during this procedure. The intention of this paragraph is met if the person supervising the refuelling has immediate and unrestricted access to the flight deck via the passenger steps and front passenger door.

CAUTION: If, during fuelling, the presence of fuel vapour is detected in the cabin, the flight crew and ground fuelling personnel shall be informed immediately. The fuelling / defuelling PROCESS and all other activities using electrical equipment (e.g. cleaning) shall stop.

Note: *The fuelling / defuelling process must stop immediately if it is observed that the safety regulations are not being observed.*

If an evacuation becomes necessary, the Commander or his nominated crew member is to assess the situation and decide on the best route to use, i.e. airbridge, steps, or escape slides.

8.2.1.4 Fuelling With Wide-cut Fuel

Wide-cut fuel is designated as Jet B, JP-4, AVTAG and AVTUR, and its use is to be avoided whenever possible. Wide-cut fuel may not be used for certain aircraft/engine. Refer to the Aircraft Flight Manual, or the aircraft FCOM, for a list of allowable fuel type.

In the event of having to uplift wide-cut fuel the following precautions apply:

Wide-cut fuel is considered to be “involved” when it is being supplied or is already present in the tanks;

Fuelling with wide cut type fuel (e.g. JET-B, JP4, AVTAG, AVTUR) shall not be carried out with passengers on board / embarking / disembarking;

When wide-cut fuel has been used, it should be recorded in the Maintenance Log. The next two uplifts of normal fuel should be treated as though they too involve the use of wide-cut fuel;

When refuelling with wide-cut fuel not containing a static dissipater, a substantial reduction on the fuelling flow rate is advisable. Reduced flow, as recommended, has the following benefits:

- It allows more time for any static charge build-up in the fuelling equipment to dissipate before the fuel enters the tank;
- It reduces any charge that may build-up due to splashing; and
- Until the fuel inlet point is immersed, it reduces misting in the tank, and consequently, the extension of the flammable range of the fuel.
- The flow rate reduction necessary is dependent on the refuelling equipment in use and the type of filtration employed on the aircraft fuelling distribution system.

Note: *Over-wing refuelling with wide-cut fuel is forbidden.*

8.2.2 Aircraft, Passenger And Cargo Handling Procedures Related To Safety

8.2.2.1 Handling Of Aircraft

8.2.2.1.1 Aircraft Servicing And Positioning Of Ground Equipment

Refer to the AHM and the relevant FCOM for detailed procedures and instructions.

8.2.2.1.2 Documents And Forms For Aircraft Handling

The AHM contains a list of Aircraft Documents and Station Files for the reference of Ground Staff. Section 12 details the various arrival; departure and delay message format.

8.2.2.1.3 Documents To Be Left Behind On Departure

The following documents are to be left on ground on each departure, in the possession of the handling agent, station representative or qualified engineer:

- Load Sheet signed by the Commander;
- Balance Table, if not using a computer loadsheet;
- Station copy of the Maintenance Log signed by the Commander.

8.2.2.1.4 Start-Up, Ramp Departure And Arrival Procedures

Engine start is not to be initiated until all passengers and freight have been loaded, the aircraft doors and hatches have been closed, and all the ground equipment, except for a ground power unit/ air start unit when used, have been removed from the vicinity of the aircraft. When departing from the ramp, local procedures for start-up and taxi clearance are to be followed.

On arrival, it is essential that Commanders comply with stand and gate entry procedures. Guidance for this is set out on the Airport Guide plates. If a Commander is uncertain about gate entry guidance he should seek information from ATC before proceeding further. If gate lighting is switched off then that gate must be assumed unusable until such time as an approved Marshaller is in attendance to provide guidance to the stand or gate. No other personnel are authorized to provide guidance to an aircraft maneuvering on the ramp.

Both pilots must confirm that the marked stand area is free of obstructions before entering the stand.

Before leaving the aircraft the Commander must ensure that all securing, power-down and closing procedures are completed as per FCOM. If the aircraft is left powered and open (e.g. under supervision of the ground crew) the Commander must ensure that a positive handover to the ground crew or the next operating crew takes place.

8.2.2.2 Passenger Handling

8.2.2.2.1 Embarkation / Disembarkation

Before embarking / disembarking passengers, ground staff / cabin crew must brief them on all relevant safety aspects (e.g. No Smoking) to be observed whilst boarding / leaving the aircraft. When airbridges are in use, ground staff must be positioned at appropriate locations to provide supervision and assistance.

When passengers are required to walk on the ramp they shall be escorted by ground staff to / from the aircraft or their approved transport. Passenger routes shall be clear of oil, ice, snow and other hazards and shall be selected in such a way as to prevent damage and accidents (e.g. no passing below wings or engines).

- If at any time during the preparation that the Cockpit Crew feel the boarding process needs to be delayed or stopped, they are to notify the SP, as soon as practicable.
- Unless notified by the Cockpit Crew, the SP will start the boarding process by notifying the Cockpit Crew on arrival of the passenger bus or when the ground staff are ready to board, The Captain's approval is not required.
- Disembarkation shall not commence until the cabin crew has received confirmation from the ground staff that passenger steps / airbridges are safely in position and that ground equipment will not be a hazard.

For embarkation / disembarkation when refuelling / defuelling is in process, refer to Chapter 8.2.1.3. Only in exceptional cases, and with the consent of the Commander, is embarkation / disembarkation permissible with one engine running. In such a case, passengers shall, under appropriate supervision by the crew and ground staff, leave / enter the aircraft on the side opposite to the running engine.

8.2.2.2.2 Adults, Children, Infants And Unaccompanied Minors

There are different regulations for the transportation of adults, children, infants and unaccompanied minors. HKEA does not provide Unaccompanied Minors service. The following designations in Table 8-16 used in this sub- regarding age classification:

Table 8-16: Age classification for type III emergency exits

Designation	Age
Infant	Younger than 2 years
Child	2 years up to and including 17 years
Adult	18 years upwards

Emergency Exit Rows Seat Allocation

Definition of Emergency Exit Row:

(a) Having direct access to an exit, from which a passenger can proceed directly to the exit without entering an aisle (e.g. floor level exit).

(b) In a row of seats that is adjacent to an emergency exit, which passengers would have to pass to gain access to an exit (e.g. over wing exit).

Note: *On aircraft whose first row of seats (e.g. Row 1 ABC) is not equipped with a FWD Bulkhead, the Emergency Exit Row Procedures apply.*

As outlined in the regulatory requirements the following type of passengers should not be seated where they could obstruct emergency exits, impede the crew of their duties, obstruct access to emergency equipment or hinder aircraft evacuation;

- Handicapped people, including the blind and deaf;
- Persons who are elderly or frail;
- Children and infants, whether accompanied or not;
- Deportees or prisoners in custody; and
- Obese passengers.

The requirement for passengers to sit in the Type III Overwing Exit, is that the individuals are physically capable to open the Exits, remove the hatch away from the frame and throw it forward of the opening. They should also be able to assist other passengers in an emergency situation.

In addition to the regulatory requirements, the company policy also includes;

- Pregnant women.

Emergency Exit Row Briefing

The Over-wing Exits are operated by passengers in the event of an emergency therefore a detailed Emergency Exit Row Briefing is required prior to take-off.

It is important that an Emergency Exit Row Briefing is clearly delivered to ensure that passengers are fully aware of their responsibilities in the event of an emergency. During the briefing the passengers are required to acknowledge that they are willing to operate the exit if required.

The crew member responsible for the Overwing Exit must confirm with the Senior Cabin Crew In-charge that the briefing has been completed.

This will indicate that the passengers at the Exit Row(s) has been briefed on the requirements and operations of the exits and are willing to assist in opening the exits in the event of an emergency.

Passengers who do not comply with the seating requirements must be re-seated before take off.

Children of two years or older must have their own seat, they are not allowed to sit alone in a seat row, but always directly besides an accompanying person. The accompanying person must be an adult;

- With seat belt signs "On", they are not allowed to sit on the lap of an adult;
- If the seat belt should be too long, proceed as follows:

- Place the child completely to the back of the seat; put a pad or a blanket between the body of the child and the seat belt; then, tighten the seat belt. Ensure that the seat back is in an upright position during take-off and landing;

Passenger Acceptance And Seating Requirement

The limitation is in accordance with the following:

- The number of passengers carried cannot exceed the number of passenger seats fitted in the aircraft, except when infants are carried, the number may increase by 5% of the maximum passengers certified for the aircraft type (i.e. 5% of 180 as certified by Airbus for A320 = 9 infants).

For the specific aircraft, see HKEA OM-B SEP.

Infants

Infants are subjected to the following transportation regulations:

- In case of a pressure loss, oxygen masks must be available in the respective seat rows;
- During take-off and landing, with the seat belt signs “On” and whenever the situation should require, infants must be kept sitting on the lap of an adult, secured with a Child Restraint Device.
- Infants sitting on the lap must not be secured by the belt of the accompanying person;
- For take-off and landing, approved Forward Facing Infant Car Safety Seats can be used for infants, provided a vacant seat is available and the infant seats are marked at least in one of the following ways:
- “This child restraint system conforms to all motor vehicle safety standards” or
- “This restraint is certified for use in motor vehicles and aircraft”.
- Seats not marked accordingly are not permitted to be used. The infant seat must be strapped on a passenger's seat with the passenger seat belt; it must not protrude over the passenger seat at the front or at the side.
- Seat pads or seats without back / safety belts are not allowed to be used.
- In view of possible turbulence, infants should not be lying in infant baskets, bassinets during the flight.
- Considering the risk of injuries by falling objects and hot drinks, infants in a basket must be laid with their head towards the cabin wall.
- Air travel is not recommended for premature babies and new born babies within 7 days after birth, and both cases shall be considered as MEDA case.
- Foldable perambulators are not permitted in the cabin.

8.2.2.2.3 Multiple Occupancy Of Seats

Multiple occupancy of seats, whether by Crew members or passengers is strictly prohibited, except in the case of an infant.

8.2.2.2.4 Car-Type Safety Seats

Definition

A car-type safety seat is an assembly consisting of a shaped seat on which a child is restrained and which rests on an aircraft seat anchored only by the adult safety belt.

Note: *A Car-Type Safety Seat must be forward facing.*

Acceptance requirement

The Car-Type Safety Seat must meet any of the below standards:

- European Aviation Safety Agency (EASA) ETSO-C100b
- Federal Aviation Administration (FAA) TSO-C100, TSO-C100a,TSO-C100b, or TSO-C100c
- European Safety Standard requirements of ECE Regulation 44
- United States Federal Motor Vehicle Safety Standard FMVSS 213
- Australia / New Zealand Standard (AS/NZS) 1754
- Kidsflysafe Inc. CARETM harness, manufactured by Amsafe, certified by the FAA to Federal Aviation Regulations (FAR) 21.305(d)

Additional HKCAD requirement

Infants up to the age of 6months be secured by an infant seat belt

Infants from the age of 6 months to 2 years be secured by an infant seat belt or a Car-Type Safety seat

Children from the age of 2 to 3 years be secured the adult safety belt or a safety harness (like the CARE harness) or a Car-Type Safety seat or an appropriate child restraint device if the child is less than 15 kg. (definition of Child Restraint Device (CRD)" means a device which interfaces with the aircraft seat and is designed to accommodate and restrain, or to enhance the restraint of, an infant or small child. Eg Car-type safety seat, infant seat belt)

Children above the age of 3 years be secured with an adult safety belt or a safety harness (like the CARE harness)

Note: *Infants under 6 months of age must use the child restraint device.*

Car-Type Safety Seat Characteristics

- A car-type safety seat must have a well-defined shell and, where there is a separate shell and under structure, they must be securely attached to each other.
- A safety seat must be of such a design that a child can easily and quickly be secured in or removed from the seat.
- A safety seat must have a single release type harness which at least secures a child's lap, torso and shoulders.
- The single release device for the harness of a safety seat must be of such a design as to prevent unreasonably easy release by the child occupying the safety seat.
- The harness straps of a safety seat must be of a minimum width of 1" or 25mm.

- Any lift-type adjusters on the harness straps of a safety seat must be of a type that requires a positive angular lift to release.

Car-Type Safety Seat installation Directions

- Safety seats with an integral harness must not be installed such that the adult safety belt is secured over the child.
- The buckle of an adult safety belt must not lie on any sub-frame member of the safety seat after tightening.
- The lower part of the safety seat whether it be the shell or under structure thereof must not unreasonably extend beyond the front of the passenger seat on which it rests.

Use Of Car-Type Safety Seats

- A safety seat shall not be located in Emergency Exit row.
- No more than one safety seat shall be permitted in any one row. It shall be located on a window seat. If more than one child is traveling as part of a group, each such child may be placed in a safety seat in the same row provided that one safety seat is located on a window seat. In such a case the only persons seated so that there is a safety seat between themselves and the nearest aisle shall be persons traveling as part of that group.
- At least one seat adjacent to a safety seat shall be occupied by a physically able person of not less than 14 years of age (“a responsible person”) who is responsible for the occupant of the safety seat.
- The safety seat shall be secured to the aircraft passenger seat by means of the adult safety belt, with the safety seat positioned on the cushion of the passenger seat. Before permitting the use of a safety seat take all reasonable steps to ensure that the safety seat conforms with the characteristics mentioned above.
- A safety seat shall only be secured to a passenger seat throughout the flight and no passenger other than the designated child may occupy that seat. A safety seat shall only be installed as an alternative to the child seat belt in accordance with the Installation directions detailed above.
- Where a safety seat is adjustable in recline it must be set upright for all occasions when passenger restraint devices are required to be used.

8.2.2.2.5 Carriage Of Persons With Reduced Mobility (PRM)

A person with reduced mobility is a person whose mobility is reduced due to physical incapacity (sensory or locomotory), an intellectual deficiency, age, or any other cause of disability when using transport and when the situation needs special attention and the adaptation to a person's need of the service made available to all passengers.

Handicapped person is understood to mean a passenger who, during their stay on board, would require particular attention and care by a cabin attendant and / or, due to their physical or mental handicap, depend upon help in case of an evacuation of the aircraft.

8.2.2.2.6 Passenger with injury or illness

Sick persons are understood to mean passengers for which a promise or acceptance to be transported depends on an assessment of their ability to fly by MedLink they are treated as MEDA Case.

8.2.2.2.7 Handling Of PRMs

In the unlikely event of an accident necessitating emergency evacuation of the aircraft, it is important that measures are taken to ensure that the maximum numbers of persons possible are able to evacuate and the flow should not be hampered by immobile or semi-mobile passengers.

The ground handling agent will ensure that not more than 25% of the aircraft's seating capacity is composed of immobile or semi-mobile passengers.

Able bodied passengers will be asked to sit with the disabled and to be responsible for their evacuation. Clear instructions to these persons must ensure that the able bodies leave the aircraft before they proceed with the disabled. In this way the maximum number of lives would be saved. The totally immobile cases will each be allocated two able bodied passengers who will be responsible for evacuating them when the main bulk of mobile passengers have left the aircraft.

Invalid passengers are usually accompanied by a family member or medically qualified attendant. In the rare event of their travelling alone, special attention should be given throughout the flight and any special orders from a doctor with regard to medication, oxygen or food must be carefully and fully carried out.

Handicapped passengers include people who are deaf or blind, ambulant and wheelchair bound. Except for their handicap they are basically fit requiring very little personal attention. Handicapped passengers should be pre-boarded and individually briefed with regard to emergency procedures. If oxygen may be required they should be seated in the non-smoking area.

Walking aids such as sticks and crutches should be secured. They should not be used during an emergency as this could cause an obstruction. Assistance for wheelchair passengers will be provided by accompanying attendants, crew members or by passengers who have been briefed to do so.

Handicapped passengers should not be seated where they could obstruct emergency exits, impede the cabin attendants in their duties, obstruct access to emergency equipment or hinder aircraft evacuation. Handicapped passengers should be seated as close to emergency exits as the above-mentioned limitations allow. It is important to note that seats which form the access route from the cabin aisle to the over wing exit must not be allocated to these passengers. They will be the last to leave the aircraft both for normal disembarkation or an emergency evacuation.

8.2.2.2.8 Safety Briefing

During an emergency evacuation, handicapped passengers shall leave the aircraft via a floor level exit if available. Cabin attendants should point out exit(s) to be used in the event of an emergency, inform them all exits are equipped with inflatable slides and reassure them that in an evacuation they would be helped by a crew member or an assigned passenger. Find out how the handicapped passenger can best be helped without causing injury and explain that there will be people at the bottom of the slide to catch them and help them away. Ask them to read the safety card.

In the case of a blind person it would be advisable to explain the operation of the seat belt and the operation and location of the oxygen masks. When instructing on exits, take the passenger to the door so that he can familiarize himself with the exit area and door structure. All other instructions given to a handicapped passenger will also apply in this case. In addition, advise the blind passenger when the seat belt / no smoking signs are turned on or off.

With a passenger who is deaf, give them the safety card and point out the call button. Writing information, questions and answers on a piece of paper will help. However, normally, careful enunciation facing the deaf passenger is usually adequate.

8.2.2.2.9 Handling Of Passengers With Suspected Communicable Diseases

Refer to HKEA OM-B SEP

8.2.2.2.10 Passengers With Special Security Significance

General

The Commander will be notified through the Passenger Information Sheet (PIS) when any of the following categories of passengers are to be carried:

- Diplomats
- Officials of international bodies having diplomatic status e.g. United Nations Assembly, UNESCO, IMF etc.;
- VIPs;
- Deportees;
- Prisoners under escort;
- Any passengers considered a special security risk.

Diplomats

- The Vienna Convention on Diplomatic Relations states:

The diplomatic agent is inviolable and all appropriate steps should be made to prevent an attack on his person, freedom and dignity;

The personal baggage of a diplomatic agent shall be exempt from inspection, unless there are serious grounds for presuming that it contains articles - the import and export of which is prohibited or controlled by the law or by the quarantine regulations of the receiving State. Such inspection shall be conducted only in the presence of the diplomatic agent or of his recognized representative.

A diplomat must be treated with great tact, since it would be contrary to the convention to insist on searching his person or his baggage. However, it would be reasonable to ask a diplomat to agree to submit to the same search as other passengers and refuse to carry him unless he consents to a search of his person and of his baggage.

If the diplomat insists on taking hand baggage into the passenger compartment he must permit an inspection of it for offensive weapons or explosives, if such an inspection is considered necessary. Confidential papers should not be examined. If he refuses such a search the baggage is to be carried in the hold or the diplomat off-loaded.

If in flight, the Commander suspects that a passenger claiming to be a diplomat is likely to endanger the safety of the aircraft, he should take whatever steps he may consider necessary to secure the safety of the aircraft and its passengers. In these circumstances, he should not allow any necessary action to be inhibited by the diplomatic status of the passenger.

"Crossed" Diplomatic Bags and Diplomatic Couriers

Diplomatic bags must be regarded as inviolable and must be allowed to be carried by a diplomatic courier in the passenger compartment without hindrance. "Crossed" diplomatic bags, i.e. those containing classified material, may not be opened for searching under any circumstances.

If a diplomatic bag is suspicious, communication should be made with local security.

Consuls

Although the privilege accorded by the Vienna Convention to diplomatic agents does not extend to consuls, it is nevertheless considered to be appropriate to extend to the head of a foreign consular post in Hong Kong the same treatment as that recommended above for diplomats and their baggage.

Such treatment should not apply to honorary consuls or to any member of a consular staff other than the head. The Commissioner or Trade Commissioner of a Commonwealth country should be regarded as the head of a consular post.

Consular bags are to be treated in the same way as diplomatic bags.

VIP Farewell and Arrival Ceremonies

Airport authorities often permit parties of officials to proceed to the aircraft to greet arriving or departing VIPs. All members of such parties should wear appropriate permits. Non-travelling members of the party should be requested not to board the aircraft and should not be permitted to pass security guards without being identified.

Ground Services will advise the Commander when deviations from standard security procedures are to be applied.

8.2.2.2.11 Carriage Of Passengers In Custody

These may be deportees, prisoners, and persons under judicial or administrative procedures.

When under escort the following provisions are required:

- A minimum of one escort for each person in custody;
- No carriage of weapon by escort;
- The escort shall ensure that the person in custody does not carry any potentially dangerous item that could be used as a weapon;
- Escorts are required to be equipped with adequate and sufficient restraining devices;
- Escorted persons are to be boarded before other passengers and deplaned after all other passengers have left the aircraft;
- Persons in custody and escorts are to be seated to the rear of the aircraft but not immediately adjacent to any exit door. The escort will be seated between the person in custody and the aisle;
- Persons in custody will be accompanied at all times, including visits to the lavatory.
- No intoxicating liquor shall be served to persons in custody or escorts and plastic cutlery only will be issued with meal service;

- The escort should have the ability to communicate with the person in custody;

The appropriate authorities should forewarn HKEA in advance of the carriage of persons in custody and under escort in order that appropriate seating arrangements can be made and to enable operating crew to be briefed.

Carriage of persons in custody will only be accepted if concurrence has been obtained in advance from the country of final destination that the person(s) in custody will be received.

Prior boarding, ground handling agent shall provide full details to the SP. SP will pass the information to the PIC.

Escorts are to be identified to a member of the flight crew and the senior cabin crew member prior to boarding the aircraft.

The SP is responsible to retain all travel documents of passenger(s). The ground handling agent shall pouch all travel documents and handed over to the SP. SP will pass the passport to ground staff directly after landed.

8.2.2.2.11.1 Carriage of inadmissible Passenger and Deportees Unaccompanied

Prior boarding, ground handling agent shall provide full details to the Senior Purser. Senior Purser will pass the information to the PIC. Any inadmissible passenger / deportees unaccompanied shall be boarded under controlled arrangements (e.g. pre-boarded before other passengers and disembark the aircraft after other passengers). The SP is responsible to retain all travel documents of passenger(s). The ground handling agent shall pouch all travel documents and hand over to the SP. SP will pass the passport to ground staff directly after landed.

The SP shall brief other cabin crew as to the category of the passenger(s) under and the relevant seat number(s).

Passenger will be assign a rear row seat, but not directly adjacent to exits.

Cabin crew shall then monitor the behavior and movement in the cabin of such passenger(s) for the duration of the flight. Particular attention must be paid to such passenger(s) prior doors close and aircraft push back. Cabin crew shall refrain from serving alcohol to that specific person.

8.2.2.2.12 Unruly Passengers

There are incidents worldwide of unruly behavior by passengers that have led, on occasions, to physical attacks on cabin crew and even fight deck crew. Such behavior seriously endangers the safety of an aircraft.

The flight deck door must remain locked at all times in flight to ensure passengers do not have easy access. In the case of a passenger or a group of passengers becoming unruly on board, cabin attendants must inform the flight crew by the interphone / emergency call system.

Although the presence of a Commander in full uniform can have a sobering effect, the Commander shall avoid becoming involved in a physical struggle with the offender. The potential problem of an incapacitated crew member should be borne in mind, and the broader security implications must be considered. The Commander may also consider landing at the nearest suitable airport if there are a number of unruly passengers and their behavior seriously affects the safety of the aircraft.

The handling of unruly passengers (intoxicated and/or abusive) is further detailed in section 1 of the Safety and Emergency Procedures Manual.

Assault On Crew Members In Flight

Should an assault occur in-flight the crew member concerned should obtain the names, addresses and seat number of two passengers who witnessed the assault.

The Commander must be informed of any incident and under the Air Navigation Regulation he has the power to control offending passengers. The crew member should advise the Commander whether he / she wishes charges to be laid against the person concerned and the Commander will radio this information to the next port.

The crew member concerned should be prepared to make a statement concerning the incident and identify the person(s) involved

The Authorities will be responsible for deciding whether further action will be taken against the passenger concerned. The Company will support the crew member's wishes to the best of its ability. However, it should be noted that in some countries there may be a problem with jurisdiction.

Action Required By Aircraft Commander

The Commander must report any such incidents to the local police authority at the point of first landing, and is to submit a report to the Civil Aviation Department (Airport Standards Division) for action.

The Act requires that the aircraft Commander, if he intends disembarking or delivering a person to the authorities, notifies ATC of:

- The aircraft nationality and registration;
- The Commander's name;
- The name and nationality of the person under restraint and details of his journey;
- A description of the incident and the position of the aircraft at the time;
- The name of up to three neutral witnesses, preferably passengers not directly involved in the incident;
- The ETA at the airport of intended landing;
- Whether the Commander intends to deliver the person to police or immigration or merely to disembark him.

On arrival a written report containing the details in the above paragraph must be given to the ground staff for forwarding to the authorities. The report should contain the names and addresses of three neutral witnesses, as mentioned in the above list, and should be accompanied, if possible, by signed statements from such witnesses.

Should there be any suspicion of an unruly passenger being under the influence of drugs or alcohol then arrangements should be made for a medical examination on arrival.

A full explanation of the circumstances must be submitted in the Voyage Report, and an entry made stating that the handcuffs were used.

Request for Assistance

In case of a security-related incident and the Commander requires assistance after landing, the following procedures are to be followed:

HONG KONG - The flight crew is to provide FOCC with as much information as possible, especially when a passenger has been restrained. FOCC will pass all relevant information to Ground Handling Agent. It is the responsibility of Ground Handling Agent to report to the police immediately. The company policy is that under any such circumstances the police will be alerted as they alone have the authority to arrest and detain the offender.

AIRPORT OTHER THAN HONG KONG - The flight crew is to provide Air Traffic Control with as much information as possible and request ATC to pass all relevant information to the airport authorities and HKEA ground staff or handling agent. HKEA senior ground staff or the handling agent's staff should maintain communication with local ATC and Police. Local ground staff should also notify the FOCC immediately.

Flight crew should keep FOCC / ATC informed of any changes in the circumstances of the incident. FOCC / handling agent staff will keep the Commander fully informed of the security arrangements. In normal circumstances, the Police will meet the aircraft on arrival

Passenger Restraint

The Commander may consider the use of hand restraints to restrain a passenger if his behavior has become uncontrollable. When a passenger is restrained by hand restraints, he should be kept under close supervision until he is handed over to the authorities. If possible he should be isolated from the other passengers but in no circumstances should he be permitted into the flight deck. Positioning near a door or emergency exit is also to be avoided.

The Tokyo Convention Act 1967 (Overseas Territories) covers “acts which, whether or not they are offenses, may or do jeopardize the safety of the aircraft or property therein or which jeopardize good order and discipline on board”. It states that the aircraft Commander and his crew have authority to take reasonable measures, including restraint, to prevent the commission of dangerous acts and to disembark the offender or to deliver him to the legal authorities of the state where the aircraft lands.

The Tokyo Convention Act also requires that if a passenger is disembarked on the instructions of the Commander in order to protect the safety of the aircraft or of persons or property on board the aircraft or to maintain the good order and discipline on board the aircraft, then a report must be submitted to:

- Thee local authorities (police or immigration) where the passenger is to be disembarked.
- The appropriate diplomatic or consular office of the country or nationality of the passenger.

It is expected that all states which are members of ICAO will become parties to the treaty which, at present, has been ratified by the following countries with jurisdiction in the Pacific and Southeast Asia region:

- Japan;
- Philippines;

- The Republic of China;
- The Republic of Korea;
- Singapore;
- Thailand; and
- Hong Kong.

8.2.2.3 Handling Of Baggage And Cargo

8.2.2.3.1 Cabin Baggage

Passengers' hand baggage is to be stowed in overhead lockers or under the seat in front of them. Hand baggage must not be stowed in such a way that it obstructs emergency exits, or protrudes into an aisle.

Maximum weight permitted in the overhead lockers is placarded. Cabin attendants are to ensure that heavy baggage and bottles of liquor are stowed under the seat. The amount of hand baggage being stowed in the lockers should also be monitored, to ensure that it is not excessive. This will help prevent baggage falling from an over filled locker and injuring the passenger below.

Passengers who board the aircraft with excessive or bulky hand baggage may, on the authority of the Commander, have these items removed from the passenger cabin and stowed in the cargo hold.

The senior cabin crew member will advise the Commander if his intervention is required to have hand baggage removed to the cargo hold.

Note: *The transport of luggage in the flight deck, the toilet compartments, in front of the wall to the 1st seat row or between the seat rows is prohibited.*

8.2.2.3.2 Carriage Of Animals In The Cabin

Animals that can be carried in the cargo compartment of HKEA aircraft may in principle be accepted for transportation as checked baggage. Any AVI on board in the cargo hold will be indicated on a NOTOC as other special load. Ground Services/Cargo are responsible to ensure that the conditions for transportation of AVI in the Cargo hold are met. No Special crew procedures apply when live animals are transported in the cargo hold.

Only in exceptional cases may an animal be accepted for carriage as hand baggage in the passenger cabin. For details see below:

- Dogs Trained to Assist Blind or Deaf Passengers

A maximum of one dog may be permitted to travel in the cabin area. There are restrictions imposed by some countries with respect to dogs being carried in the cabin area.

Note: *It is the responsibility of the custodian passenger to hold all the applicable documentation for an animal, as required by a destination country.*

- Conditions for Carriage of Pets in the Passenger Cabin

The following HKEA regulations will apply for the transport of pet animals in the cabin:

The station has to observe the appropriate regulations and must inform the Commander concerning the transport of an animal in the cabin. (NOTOC)

Only dogs are permitted. Only in exceptional cases will any animals be allowed to be transported in the cabin, and only with the prior authorisation of the DO.

8.2.2.3.3 Loading And Securing Of Items In The Aircraft

All baggage, cargo and mail to be loaded should be positioned on the ramp in sufficient time to ensure an on-time departure and to reduce pressure on staff detrimental to safety. The loading must be protected against the elements and all sources of contamination. All loading equipment shall be handled carefully to avoid damage to the aircraft or the load.

Only the appropriate compartments shall be used for loading. Loading in the toilets and crew compartments etc is prohibited. The same safety related principles for unloading apply. Detailed loading and securing of load instructions are contained in the AHM.

Bulk items weighing between 50 kg to 150 kg shall be lashed. However, restraint can be achieved by filling the compartment or net section to its volumetric capacity, thereby securing the load in all directions by the floor, walls and ceiling of the compartment (Note: compartments or s which are filled up to at least 3/4 of their heights are considered as volumetrically full.)

Items weighting 150 kg or more must be restrained, irrespective whether the compartment or net section is volumetrically full or not.

- Carriage of Dangerous Goods And Weapons

Refer to Chapter 9 of this Manual.

- Conditions for Carriage of Animals as Checked Baggage

The station has to observe the appropriate regulations and must inform the Commander concerning the transport of animals in the Aft Cargo Compartment via a NOTOC.

- Special Loads
- Detailed handling instructions for carrying some special loads are published in the AHM. This includes carriage of live animals, and dimension limits for oversize cargo.
- Information on carriage of other special loads will be published in the AHM. In the interim Commanders must seek expert advice from Ground Services, through the FOCC, before departure if asked to carry any unusual loads, which include human remains, valuable cargo, courier baggage or perishable goods.

8.2.2.3.3.1 Special Load - Notification To Captains (NOTOC)

HKEA adopts the recommendation made by IATA in how the aircraft Captain is notified of the special load including dangerous goods (Airport Handling Manual section 3 AMH 381 refers).

Specification

(a) Size - A4(210x297 mm)

(b) Colour - text in pale green printed on white background

Distribution

Three Copies: (1) Captain in Command
(2) Station of Loading
(3) Forward with flight in Cargo Document Pouch

Completion

See specimen with box reference numbers in Table 8.2.2.3.3.1.1.

(1) Station of loading.
Completion - self-explanatory.

(2) Flight Number.
Completion - self-explanatory.

(3) Date.
Completion - self-explanatory.

(4) Aircraft registration.
Completion - self-explanatory.

(5) Prepared by.
Completion - the person or office preparing the notification prior to its release to the weight and balance office or ramp.

(6) Station of unload.
Completion - station of unload for this flight (IATA three-letter airport code).

(7) Air waybill number.
Completion - self-explanatory.

(8) Content and Description
Completion -as per Shipper's Declaration.

(9) Number of packages.
Completion - self-explanatory..

(10) Quantity.
Completion - as per Shipper's Declaration.

(11) Supplementary Information
Completion - any supplementary information provided to the Captain.

(12) IMP Code
Completion - Cargo-IMP code.

(13) UN or ID Number..
Completion - enter "X" for cargo aircraft only items

(14) Loading position.
Completion - enter the loading position in the POSITION column. Additionally, the ULD identification, e.g. ULD ID code, may be entered in the ULD ID column.

(15) Loading supervisor's signature.
Completion - signature of responsible agent.

(16) Captain's signature.
Completion - self-explanatory

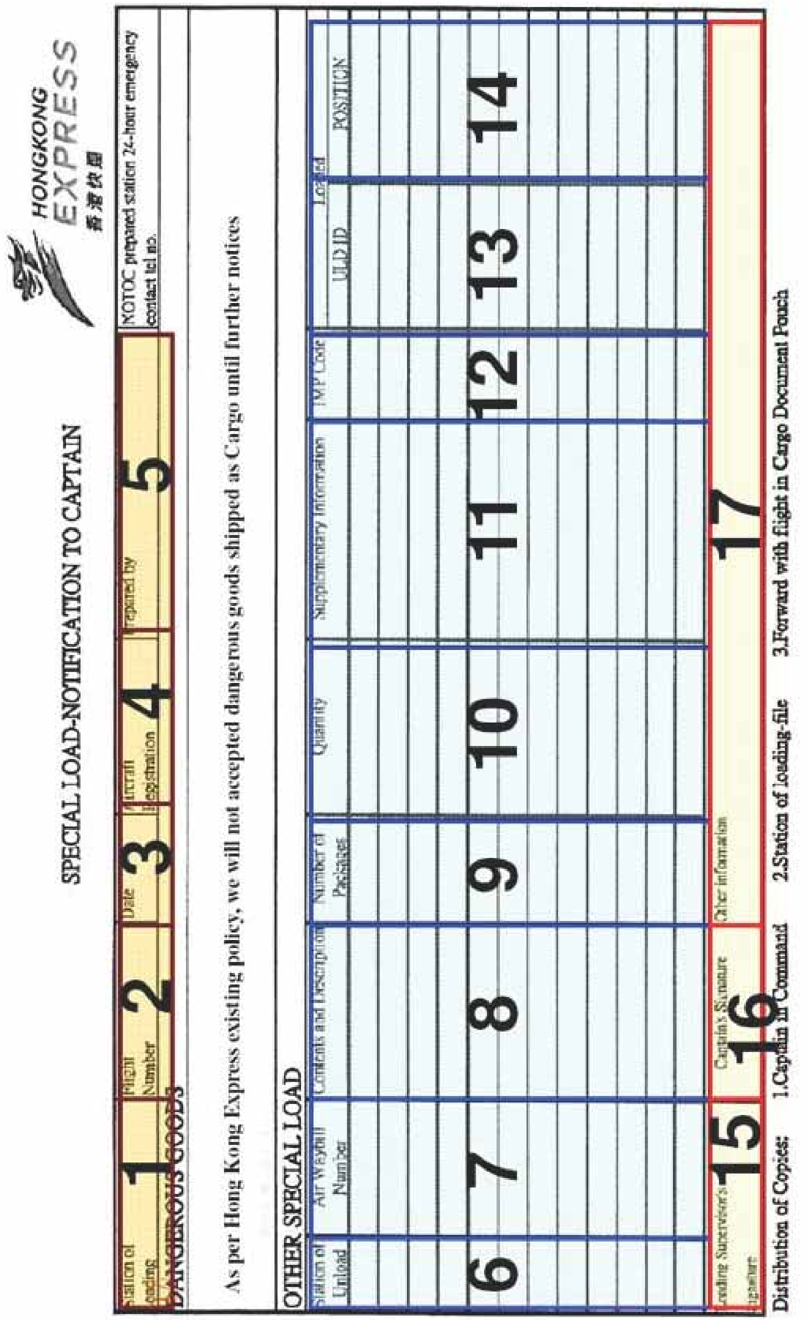
(17) Other Information.

Completion - any Additional information provided to the Captain.

State Exemptions

When dangerous goods are being carried under a state exemption, reference must appear on the NOTOC.

Figure 8-5: Sample of NOTOC



8.2.3 Procedures For The Refusal Of Embarkation

In accordance with the "Conditions of Carriage" HKEA may refuse to carry or remove en-route any person holding a valid ticket when, in the exercise of reasonable discretion, HKEA decides that:

- such action is necessary in the interest of safety; or
- such action is necessary to prevent violation of any applicable law, regulation or
- order of any state or country to be flown from or over; the conduct, status, age or mental or physical condition of a passenger is such as to:
- require special assistance from HKEA that it cannot provide; or
- cause difficulties or be objectionable to other passengers; or
- constitute or create any hazard or risk to them self, or to other persons or property; or the passenger fails to observe instructions issued by HKEA personnel or their appointed agent.

The Commander shall not permit any person to be carried on board his aircraft who is obviously under the influence of intoxicating liquor or drugs. This does not apply to persons under the influence of intoxicating drugs who have received emergency medical treatment after the commencement of the flight, or to persons under medical care by trained personnel who are accompanying them.

Should it become necessary to remove a passenger from a flight for any of the above reasons, the station manager must be informed and requested to initiate the necessary action.

8.2.4 De-Icing And Anti-Icing On The Ground

The aircraft must not takeoff unless the critical surfaces are clear of any deposits which might adversely affect the performance and/or controllability of the aircraft. The Commander shall obtain De-icing/Anti-icing whenever he determines that this is necessary.

Note: *Critical surfaces include: wings, flight controls, engine inlets, fuselage surfaces in front of engines, or other areas defined in the FCOM of the relevant aircraft.*

A member of the crew must perform a visual check of the wings, or other areas defined in the FCOM, just before takeoff if any contamination is suspected.

Cold Weather Operations listed in OM-A Chapter 8.3.8.5

8.2.4.1 De-Icing / Anti-Icing Procedures

When aircraft surfaces are contaminated by frost, ice or snow, they must be de-iced prior to take-off. When there is a risk of icing conditions during taxying or initial take off path the surfaces must be protected by anti-icing treatment. If both treatments are required, a one-step or two-step process may be applied. The one-step de-/anti-icing is carried out by a single application of heated diluted de-/anti-icing fluid. The two-step procedure is carried out by a first step of de-icing with heated de-/anti-icing fluid and in the second step, Type I or II or IV fluid is sprayed to build a protective anti-icing coating on the aircraft surfaces. It must be assured that the two steps are applied consecutively without any intermediate break to avoid refreezing of adhered moisture. The tables give a guideline for the application of the one or two-step method. The selection depends upon weather conditions, available equipment, available fluids and the holdover time required to be achieved.

CAUTION: Under no circumstances can an aircraft that has been anti-iced receive a further coating of anti-ice fluid directly on top of the existing film. In continuing precipitation, the original anti-icing coating will be diluted at the end of holdover time and refreezing could begin.

Table 8-17: Guideline For Application Of ISO/SAE Type I Fluid Mixture

OAT	ONE STEP PROCEDURE	TWO STEP PROCEDURE	
	DE/ANTI-ICING *	1ST STEP : DE-ICING	2ND STEP : ANTI-ICING**
-3°C and Above	Freezing point of heated fluid mixture shall be at least 10°C below actual OAT	Water heated to 60°C minimum at the nozzle or a heated mix of fluid and water	Freezing point of fluid mixture shall be at least 10°C below actual OAT
Below -3°C		Freezing point of heated fluid mixture shall not be more than 3°C above actual OAT	

* Clean aircraft may be anti-iced with cold fluid.

* To be applied before 1st step fluid freezes, typically within 3 minutes.

Table 8-18: Guideline For Application Of ISO/SAE Type II And Type IV Fluid Mixture

OAT	CONCENTRATION FLUID/WATER BY VOLUME (FLUID % /WATER %)		
	ONE STEP PROCEDURE	TWO STEP PROCEDURE	
	DE/ANTI-ICING	1ST STEP: DE-ICING	2ND STEP: ANTI-ICING**
-3°C and Above	50/50 heated * Type II or IV	Water heated to 60°C minimum at the nozzle or a heated mix of Type I, II or IV.	50/50 Type II or IV
Below -3°C to -14°C	75/25 heated * Type II or IV	Heated suitable mix of Type I, II or IV with freezing point not more than 3°C above actual OAT	75/25 Type II or IV
Below -14°C to -25°C	100/0 heated * Type II or IV		100/0 Type II or IV
Below -25°C	ISO/SAE Type II/IV fluid may be used below -25°C provided that the freezing point of the fluid is at least 7°C below OAT and that aerodynamic acceptance criteria are met. Consider the use of ISO Type I when Type II or IV fluid cannot be used.		

* Clean aircraft may be anti-iced with cold fluid.

* To be applied before 1st step fluid freezes, typically within 3 minutes.

Note: *For heated fluids, a fluid temperature not less than 60ºC at the nozzle is desirable. Max fluid temperature 90ºC.*

Note: *These tables are taken from the ISO/SAE specification and do not apply to other than ISO/SAE Type I or IV fluids.*

CAUTION:

- **Wing skin temperatures may differ and in some cases be lower than OAT.**
- **A stronger mix can be used under these conditions.**
- **An insufficient amount of anti-icing fluid, especially in the second step of a two step procedure, may cause substantial loss of holdover time. This is particularly true when using a Type I fluid mixture for the first step (de-icing).**

8.2.4.2 De-Icing And Anti-Icing Fluids

ISO/SAE Type I fluids are glycol based and contain no thickening agent. To achieve a low freezing point and good flow off qualities the fluid is normally diluted with water. Type I fluid should not be applied neat because it has a significantly higher freezing point (-10°C) than water diluted mixture (60% glycol / 40% water: -50°C). The flow off qualities at low fluid temperature is not sufficient, therefore to improve efficiency the fluid is normally heated before its application. The holdover time is relatively short.

ISO/SAE Type II and Type IV fluids consist of a mixture of glycol and water. The addition of a thickening agent enables the fluid to form a thicker wetting film which allows a longer protection time before effectiveness starts to degrade due to dilution with water of melted precipitation (snow, sleet, etc). These fluids possess a property that causes them to flow off the surfaces as shear force increases with aircraft speed.

The advanced Type II / IV fluids show better flow off qualities than old generation Type II fluids, so that no performance penalties have to be considered. The Type II / IV fluids holdover time is much longer and the protective effect is much better when compared to the Type I fluids.

All ISO/SAE qualified de-icing and anti-icing fluids may be used unless they are specifically prohibited in the Airplane Flight Manual or FCOM.

8.2.4.3 Holdover Times

Since the de / anti-icing fluids have protective qualities for only a finite period, holdover times have been introduced.

The holdover time is the estimated time anti-icing fluid will prevent the formation of frost or ice or the accumulation of snow on the protected surfaces of an aircraft, under (average) weather conditions mentioned in the guideline tables for holdover times.

Holdover times for different de-icing/anti-icing fluids are updated every year by FAA, Transport Canada and European authorities before the start of the winter season. Whenever available the Company will publish the holdover times to be used in the form of FCON, based on the published data. The holdover times given in this section are to be used when information in the form of FCON is not available.

Note: *The start of the holdover time is from the beginning of the anti-icing treatment. For each type of weather condition, OAT and fluid type, a holdover time range is shown in which the upper limit represents light conditions and the lower one moderate conditions.*

Note: *The only acceptable decision making criterion for takeoff without a pre-takeoff contamination inspection, is the shorter time within the applicable HOT table cell.*

WARNING: Type I, II and IV fluids used during ground deicing / anti-icing are not intended for, and do not provide, ice protection during flight.

CAUTION: Should the calculated HOT expire, the only option available to allow takeoff is to repeat the de-/anti-icing process.

CAUTION: Under no circumstances can an aircraft that has been anti-iced receive a further coating of anti-ice fluid directly on top of the existing film. In continuing precipitation, the original anti-icing coating will be diluted at the end of holdover time and refreezing could begin.

CAUTION: The time of protection will be shortened in heavy weather conditions. Heavy precipitation rates or high moisture content, high wind velocity or jet blast may reduce holdover time below the lowest time stated in the range. Holdover time may also be reduced when the aircraft skin temperature is lower than OAT. Therefore the indicated times should be used only in conjunction with a pre-takeoff check.

Figure 8-6: Approximate Holdover Times For ISO/SAE Type I Fluid Mixtures.

SAE TYPE I FLUID HOLDOVER TIME GUIDELINES ON CRITICAL AIRCRAFT SURFACES COMPOSED PREDOMINANTLY OF ALUMINUM[1]

This table applies to aircraft with critical surfaces constructed predominantly or entirely of aluminum materials that have demonstrated satisfactory use of these holdover times.

THE RESPONSIBILITY FOR THE APPLICATION OF THESE DATA REMAINS WITH THE USER

Outside Air Temperature[2]		Approximate Holdover Times Under Various Weather Conditions (minutes)							
Degrees Celsius	Degrees Fahrenheit	Freezing Fog or Ice Crystals	Snow, Snow Grains or Snow Pellets[3] Very Light[4]	Light[4]	Moderate	Freezing Drizzle[5]	Light Freezing Rain	Rain on Cold Soaked Wing[6]	Other[7]
-3 and above	27 and above	11 – 17	18	11 – 18	6 – 11	9 – 13	4 – 6	2 – 5	
below -3 to -6	below 27 to 21	8 – 13	14	8 – 14	5 – 8	5 – 9	4 – 6	CAUTION: No holdover time guidelines exist	
below -6 to -10	below 21 to 14	6 – 10	11	6 – 11	4 – 6	4 – 7	2 – 5		
below -10	below 14	5 – 9	7	4 – 7	2 – 4				

NOTES

1 Type I Fluid / Water Mixture must be selected so that the freezing point of the mixture is at least 10°C (18°F) below outside air temperature.
2 Ensure that the lowest operational use temperature (LOUT) is respected.
3 To determine snowfall intensity, the Snowfall Intensities as a Function of Prevailing Visibility table (Table 5) is required.
4 Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain.
5 Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.
6 No holdover time guidelines exist for this condition for 0°C (32°F) and below.
7 Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail.

CAUTIONS

- **The only acceptable decision-making criterion, for takeoff without a pre-takeoff contamination inspection, is the shorter time within the applicable holdover time table cell.**
- **The time of protection will be shortened in heavy weather conditions, heavy precipitation rates, or high moisture content. High wind velocity or jet blast may reduce holdover time below the lowest time stated in the range. Holdover time may be reduced when aircraft skin temperature is lower than outside air temperature.**
- **Fluids used during ground de/anti-icing do not provide in-flight icing protection.**

Figure 8-7: Approximate Holdover Times For ISO/SAE Type II Fluid Mixture

SAE TYPE II FLUID HOLDOVER TIME GUIDELINES

THE RESPONSIBILITY FOR THE APPLICATION OF THESE DATA REMAINS WITH THE USER

Outside Air Temperature[1]		Type II Fluid Concentration Neat Fluid/Water (Volume %/Volume %)	Approximate Holdover Times Under Various Weather Conditions (hours:minutes)					
Degrees Celsius	**Degrees Fahrenheit**		**Freezing Fog or Ice Crystals**	**Snow, Snow Grains or Snow Pellets[2,3]**	**Freezing Drizzle[4]**	**Light Freezing Rain**	**Rain on Cold Soaked Wing[5]**	**Other[6]**
-3 and above	27 and above	100/0	0:35 – 1:30	0:20 – 0:45	0:30 – 1:00	0:15 – 0:30	0:07 – 0:40	CAUTION: No holdover time guidelines exist
		75/25	0:25 – 1:00	0:15 – 0:30	0:20 – 0:45	0:10 – 0:25	0:05 – 0:25	
		50/50	0:15 – 0:30	0:05 – 0:15	0:10 – 0:20	0:05 – 0:10	CAUTION: No holdover time guidelines exist	
below -3 to -14	below 27 to 7	100/0	0:20 – 1:05	0:15 – 0:30	0:20 – 0:45[7]	0:10 – 0:20[7]		
		75/25	0:25 – 0:50	0:08 – 0:20	0:15 – 0:30[7]	0:08 – 0:15[7]		
below -14 to LOUT	below 7 to LOUT	100/0	0:15 – 0:35[8]	0:15 – 0:30[8]				

NOTES

1 Ensure that the lowest operational use temperature (LOUT) is respected. Consider use of Type I fluid when Type II fluid cannot be used.
2 To determine snowfall intensity, the Snowfall Intensities as a Function of Prevailing Visibility table (Table 5) is required.
3 Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain.
4 Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.
5 No holdover time guidelines exist for this condition for 0°C (32°F) and below.
6 Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail.
7 No holdover time guidelines exist for this condition below -10°C (14°F).
8 If the LOUT is unknown, no holdover time guidelines exist below -25°C (-13°F).

CAUTIONS

- **The only acceptable decision-making criterion, for takeoff without a pre-takeoff contamination inspection, is the shorter time within the applicable holdover time table cell.**
- **The time of protection will be shortened in heavy weather conditions, heavy precipitation rates, or high moisture content. High wind velocity or jet blast may reduce holdover time below the lowest time stated in the range. Holdover time may be reduced when aircraft skin temperature is lower than outside air temperature.**
- **Fluids used during ground de/anti-icing do not provide in-flight icing protection.**

Figure 8-8: Approximate Holdover Times For ISO / SAE Type IV Fluid Mixtures

SAE TYPE IV FLUID HOLDOVER TIME GUIDELINES

THE RESPONSIBILITY FOR THE APPLICATION OF THESE DATA REMAINS WITH THE USER

Outside Air Temperature[1]		Type IV Fluid Concentration Neat Fluid/Water (Volume %/Volume %)	Approximate Holdover Times Under Various Weather Conditions (hours:minutes)					
Degrees Celsius	Degrees Fahrenheit		Freezing Fog or Ice Crystals	Snow, Snow Grains or Snow Pellets[2,3]	Freezing Drizzle[4]	Light Freezing Rain	Rain on Cold Soaked Wing[5]	Other[6]
-3 and above	27 and above	100/0	1:30 – 2:25	0:35 – 1:10	0:50 – 1:30	0:35 – 0:50	0:10 – 1:25	
		75/25	1:25 – 2:40	0:30 – 1:05	0:50 – 1:15	0:30 – 0:45	0:09 – 1:15	
		50/50	0:25 – 0:40	0:09 – 0:15	0:15 – 0:25	0:09 – 0:15	CAUTION: No holdover time guidelines exist	
below -3 to -14	below 27 to 7	100/0	0:20 – 1:20	0:25 – 0:50	0:25 – 1:10[7]	0:15 – 0:25[7]		
		75/25	0:25 – 0:50[8]	0:20 – 0:40[8]	0:15 – 1:05[7,8]	0:15 – 0:25[7,8]		
below -14 to LOUT	below 7 to LOUT	100/0	0:15 – 0:40[9]	0:15 – 0:30[9]				

NOTES

1 Ensure that the lowest operational use temperature (LOUT) is respected. Consider use of Type I fluid when Type IV fluid cannot be used.
2 To determine snowfall intensity, the Snowfall Intensities as a Function of Prevailing Visibility table (Table 5) is required.
3 Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain.
4 Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.
5 No holdover time guidelines exist for this condition for 0°C (32°F) and below.
6 Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail (Table 7 provides allowance times for ice pellets and small hail).
7 No holdover time guidelines exist for this condition below -10°C (14°F).
8 If the LOUT is unknown, no holdover time guidelines exist below -5.5°C (22.1°F).
9 If the LOUT is unknown, no holdover time guidelines exist below -23.5°C (-10.3°F).

CAUTIONS

- **The only acceptable decision-making criterion, for takeoff without a pre-takeoff contamination inspection, is the shorter time within the applicable holdover time table cell.**
- **The time of protection will be shortened in heavy weather conditions, heavy precipitation rates, or high moisture content. High wind velocity or jet blast may reduce holdover time below the lowest time stated in the range. Holdover time may be reduced when aircraft skin temperature is lower than outside air temperature.**
- **Fluids used during ground de/anti-icing do not provide in-flight icing protection.**

8.3 Flight Procedures

8.3.1 VFR / IFR Policy

All HKEA public transport operations are to be conducted in accordance with the Instrument Flight Rules (IFR) plan, and that full use of air traffic control services and advisory services shall be made.

Commanders do not have approval to operate a public transport flight under the Visual Flight Rules (VFR) without the written authorization from the General Manager - Flying in consultation with the HKCAD.

In the event that a VFR flight is authorized, the General Manager - Flying will issue written operating minima and restrictions appropriate to the flight as approved by the HKCAD; these include:

- IFR Exit / Entry way-point
- Activation and cancellation of IFRB procedures
- VFR weather requirements
- ATC procedures
- VFR Arrival and Departure procedures
- Aerodrome Operating Minimums
- Aircraft Operating Procedures
- Engineering procedures

8.3.2 Navigation & Surveillance

8.3.2.1 Compliance With State Regulations

The aircraft is, at all times, to be flown in accordance with all statutory requirements and rules relevant to the safe conduct of a flight.

In respect of rules governing flight procedures pilots are reminded that, as license holders, they are required to be thoroughly familiar with the relevant information contained in the HK AIP, and AIC, Class I and II NOTAMS, Air Navigation (Hong Kong) Order, and HKCAD Information circulars.

A copy of the HK AIP amended up to date, together with current NOTAMS is provided at ATS briefing offices and the HKCAD Aeronautical Information Circulars are available in the Briefing Office at base.

It is the duty of all aircrew to acquaint themselves at the airfield of departure with all relevant amendments, corrections and alterations to existing flight rules and current navigational warnings.

8.3.2.2 Routes And Areas Of Operation

Operations shall only be conducted along such routes or within such areas, for which:

- Ground facilities and services, including meteorological services, are provided which are adequate for the planned operation;
- The performance of the aeroplane intended to be used is adequate to comply with minimum flight altitude requirements;

- The equipment of the aeroplane intended to be used meets the minimum requirements for the planned operation;
- Appropriate maps and charts are available;
- Adequate aerodromes are available within the time/distance limitations.

Operations shall be conducted in accordance with any restriction on the routes or the areas of operation, imposed by the Authority.

8.3.2.3 Minimum Altitude For Commencing A Turn After Take-Off

Obstacle Clearance, noise abatement, or departure procedures may require an immediate turn after take-off. The minimum height for the commencement of a turn is 400ft AGL.

8.3.2.4 In-Flight Procedures

Standard navigational procedures and system requirements including policy for carrying out independent cross checks of keyboard entries where they affect the flight path followed by the aircraft are detailed in FCOM.

Conventional Navigation procedures are based on the availability of satisfactory ground navigation aids, infrastructures (VOR, DME, NDB. etc), and aircraft navigation systems, which enable navaid to navaid navigation. Large safety margins mandated with respect to aircraft separation contribute to airspace saturation in certain areas.

Area Navigation (RNAV) allows to navigate “point-to-point”, the aircraft position being determined by the on board navigation system using the information from several navigation aids such as VOR/DME or DME/DME or GNSS (GPS). It is not needed to navigate directly to and from the navigation aids. For example, this allows to create approaches constituted by a succession of non-aligned straight segments. But in all cases, the path is geographically defined.

Inertial reference system (IRS) allows to extend this "Area Navigation” further than the range of the navigation aids.

The Performance Based Navigation (PBN)

The Performance Based Navigation (PBN) concept specifies RNAV system performance requirements in terms of accuracy, integrity, availability, continuity and functionality needed for the proposed operations in the context of a particular Airspace Concept, when supported by the appropriate navigation infrastructure. In that context, the PBN concept represents a shift from sensor-based to performance-based navigation.

8.3.2.5 Definitions

Aircraft-Based Augmentation System

An augmentation system that augments and / or integrates the information obtained from the other GNSS elements with information available on board the aircraft.

Note: *The most common form of ABAS is receiver autonomous integrity monitoring (RAIM).*

Receiver Autonomous Integrity Monitoring (RAIM)

A form of ABAS whereby a receiver processor determines the integrity of the GNSS navigation signals using only GPS.

This determination is achieved by a consistency check among redundant pseudo-range measurements. At least one additional satellite needs to be available with the correct geometry over and above that needed for the position estimation, for the receiver to perform the RAIM function.

Navigation Specifications

The requirements placed on the area navigation system for operation along a particular route, procedure or within airspace where approval against the navigation specification is prescribed.

These requirements include:

- The performance required of the area navigation system in terms of accuracy, integrity, continuity and availability;
- The functions available in the area navigation system so as to achieve the required performance;
- The navigation sensors, integrated into the area navigation system, that may be used to achieve the required performance and
- Flight Crew and other procedures needed to achieve the performance mentioned of the area navigation system.

A navigation specification, which requires on-board performance monitoring and alerting, are termed RNP specifications. Those that do not require on-board performance monitoring and alerting are know as RNAV specifications

The use of on-board performance monitoring and alerting to distinguish between RNP and RNAV is convenience. This simplifies the fact that there are a few differences and many common functional aspects to aircraft systems that must perform the desired flight operations.

Navaid Infrastructure

Space or ground-based navaids that are mentioned in each navigation specification.

Navigation Application

A navigation application is when a navigation specification and associated navaid infrastructure are applied to ATS routes, instrument approach procedures and / or defined airspace volume, in accordance with the airspace concept.

Examples of how the navigation specification and navaid infrastructure may be used together in a navigation application include RNAV or RNP SID's and STARs, RNAV or RNP ATS routes, and RNP approach procedures.

It is impossible that a sequence of RNAV and RNP applications are used. A flight may commence in an airspace using a basic-RNP 1 SID, transit through

en-route then Oceanic airspace requiring RNAV 2 and RNP 4, respectively, and culminate with Terminal and Approach operations requiring RNAV 1 and RNP APCH.

Navigation System capability

The FMGS will use the most accurate source of updating that is available. Different aircraft types will have different navigation accuracy updating method or concept.

Airbus, FMGS position will normally be updated by GPS; there is no time limit for RNP 10 operations. GPS updating provides an ANP of a fraction of a mile. For redundancy, there are two GPS systems on board. Just one will adequately provide this accuracy to automatically update its position.

The order of priority of updating is as follows:

- GPS
- Two DME stations
- One VOR and one DME
- ADIRS

DME-DME updating provides an ESTIMATED ACCUR to within0.28nm.VOR-DME updating provides an ESTIMATED ACCUR to within 0.28nm and is based on 0.1nm + 0.5 x DME distance e.g. distance between the aircraft and the VOR-DME

If GPS PRIMARY function is lost outside radio navaid coverage, the RNP capability will be maintained in IRS ONLY for a certain period, based on the demonstrated IRS drift rate, starting at IRS ground alignment or at the last FMGS radio update.

(i) RNP 10: the flight time outside radio navaid coverage is limited to 6.2 hrs since IRS ground alignment, or 5.7 hrs since last radio update.

(ii) BRNAV: The flight time outside radio coverage is limited to 2 hrs.

Error Definitions

Total System Error (TSE) consists of Path Definition Error (PDE), Flight Technical Error (FTE) and Navigation System Error.

PDE is an error where the path defined in the RNAV system does not correspond to the desired path, e.g. the path expected to be flown over the ground.

FTE is an error where the aircrew or autopilot's inability to follow the defined path or track, including any display error.

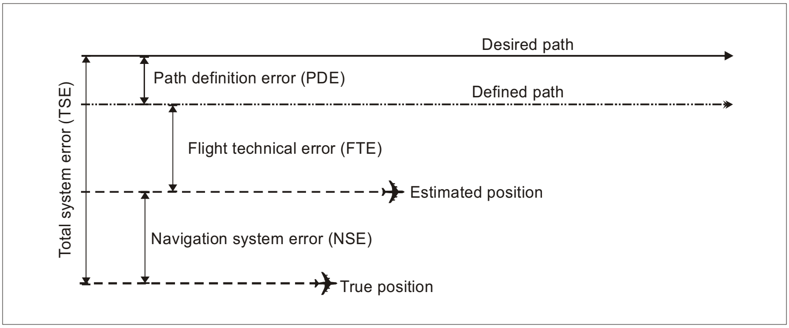
NSE is the error that occurs due to the difference of the aircraft's computed and actual positions.

Airbus's NSE is denoted as Estimated Position Error (EPE) and is monitored by the FMGS and Flight Crew. “ACCUR LOW” messages require Flight Crew action through radio aid comparison.

“GPS PRIMARY LOST” messages indicate to the Flight Crew that the integrity is degraded and accuracy needs to be monitored by the flight crew.

The “GPS PRIMARY LOST” message constitutes an integrity message of the RNAV system.

FTE only displays on the ND as cross track error and has to be monitored by the Flight Crew.



$TSE=(PDE^2 + NSE^2 + FTE^2)^{1/2}$

TSE <= "X" value depends on which PBN specification

PDE - nowadays can be treated as zero with the presents of WGS 84.

8.3.2.6 Performance Based Navigation Concept

The Performance Based Navigation concept (PBN) specifies a required level of navigation performance, which is characterized by a navigation accuracy level associated with the considered route or procedure. It is defined by a value "X", which is the max lateral distance from the track centerline that aircraft may deviate for 95% of flight time.

Typical examples of navigation performance:

Oceanic area (en-route): X =10

Continental area (en-route): X =5

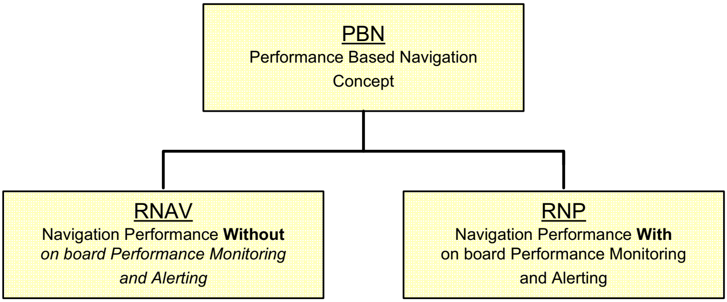
Terminal area (SID or STAR):X = 1

Approach: X = 0.3

The value "X" is function of the type of Airspace/procedure and availability of ground navigation aids The PBN concept includes:

- RNAV navigation specifications, and
- RNP navigation specifications

Figure 8-9: Performance Based Navigation



The RNP concept ensures that the aircraft remains contained within a specific volume of airspace, without requiring an outside agent to monitor its accuracy and integrity.

8.3.2.7 RNP / RNAV Application By Phase Of Flight

(1) The numbers given in the table refer to the 95 per cent accuracy requirements (NM).

(2) RNAV 5 is an en-route navigation specification which may be used for the initial part of the STAR outside 30 NM and above MSA.

(3) RNP 2 and Advanced-RNP 1 are expected 1 are expected to be included in a future revision of the PBN manual.

Table 8-19: PBN Navigation Specification

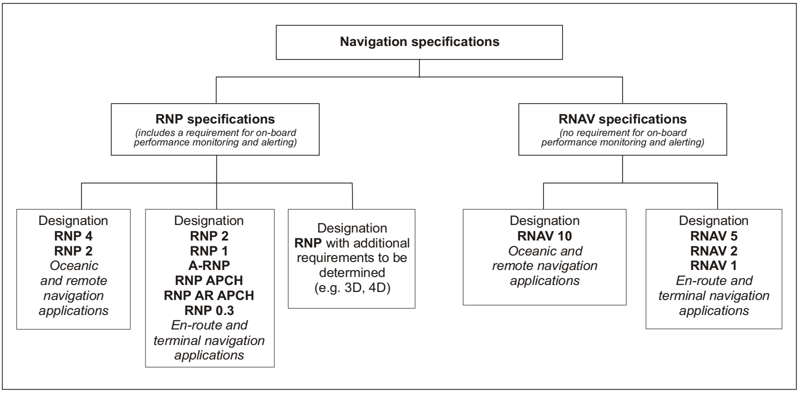
Navigation Specification	Flight Phase							
	En-route Oceanic/ remote	En-route continental	Arrival	Approach				Departure
				Initial	Intermediate	Final	Missed	
RNAV 10	10							
RNAV 5		5	5					
RNAV 2		2	2					2
RNAV 1		1	1	1	1		1	1
RNP 4	4							
Basic-RNP 1			1	1	1		1	1
RNP APCH				1	1	0.3	1	

(a) The navigation application is limited to use on STARs and SIDs only.

(b) The area of application can only be used after the initial climb of a missed approach phase.

(c) Beyond 30 NM from the airport reference point (ARP), the accuracy value for alerting becomes 2 NM.

8.3.2.7.1 Airspace Designation



Global Navigation Satellite System (GNSS)

Global Navigation Satellite System (GNSS) is the navigation infrastructure platform that permits utilization of the benefits to be gained from RNAV capabilities and the RNP concept. GNSS provides a global time based position determination process that includes one or more satellite constellations, aircraft receivers and system integrity monitoring.

RNAV / RNP Aircraft Navigation Systems

The integrity of the on-board RNAV / RNP navigation systems is a function of:

- Satellite Constellation Configuration
- Aircraft Equipment
- Aircraft's Geographical position
- Required Navigation accuracy
- Default or Manually entered RNP value.

System Integrity

The FMGC can use one of the following as the displayed RNP:

A) Default RNP - FMGC default values for different phases of flight. This value will change according to the flight phase and it can be 2nm (En route & Oceanic), 1nm (Terminal & Take -Off) and o.3nm (Approach with GPS / LOC) or 0.5nm (Approach without GPS / LOC)

b) Manually entered RNP - A manually entered RNP remains until changed or deleted and is reflected as “REQUIRED ACCUR” in the PROG page of the FMGC.

Note: 1. *For RNP smaller than specified for the procedure, airspace or route may cause inappropriate crew alerts.*

Note: 2. *Actual Navigation Performance (ANP) is know as the Estimated Position Error on Airbus*

Note: 3. *When ANP exceeds RNP, a crew alert is provided as follows: “ACCUR LOW”*

Note: 4. *Lateral deviation from the track does not result in a crew alert.*

RNP-10

Aircraft approved to use GNSS as a primary means of navigation for Oceanic and Remote Area operations, in accordance with regulatory requirements, meet the RNP-10 requirements without time limit. All company aircraft are RNP-10 compliant. RNP-10 is equivalent to RNAV-10.

The ICAO RNP-10 requirement does not incorporate the need for onboard monitoring or alerting and hence the equivalence to RNAV-10. The RNP-10 navigation specification does not require any ground-based navaid infrastructure, but requires at least two sets of onboard long-range navigation systems (IRS/FMGS, INS, and GPS). It allows minimum lateral route spacing of 50 NM where ground-based navigation aids, communications, and surveillance are available.

ATC shall be informed immediately of any deterioration or failure of the navigation equipment which causes a downgrade of navigation performance (FM message NAV ACCURACY DOWNGRADE) and/or any deviation required for a Contingency procedure. ATC may require the aircraft to descend to a lower than optimum flight level to maintain separation from other traffic on the same route.

Minimum equipment required to operate in RNP 10 airspace for the Airbus:

- 2 FMGS
- 2 MCDU's (MCDU 3 may be inoperative provided IR1 and IR2 operate normally)
- 2 IRS
- 1GPS (If required by flight time, outside radio navaid coverage)

RNAV-5

Applies to continental routes and the RNAV application uses a variety of available navigation aids, both satellite and ground. The navigation sensors must be at least one INS or IRS with appropriate updating by GNSS, DME/DME, VOR/DME or VOR. It normally requires radar coverage and direct voice communications. It is the navigation performance standard specified for European, Middle East airspace and parts of Japan, and is based on existing RNAV capability.

The RNAV-5 specification does not require an alert to the pilot in the event of excessive navigation errors. All company aircraft are RNAV-5 compliant.

Minimum equipment required to operate in RNP 5 airspace for the Airbus:

- 1 FMGC
- 1MCDU
- 1 GPS or 1 VOR/DME or 2 DMEs to update FM position
- 2 NDs (the temporary display of ND information via the PFD/ND switch is permitted on one side)
- 1 IRS

RNAV-1/2

Applies primarily to continental en route and terminal area operations where radar surveillance and direct ground-to-air communications are available. The RNAV-1 navigation specification applies to en route as well as SID and STAR terminal area operations. The RNAV-2 navigation specification applies to en route operations. The navigation sensor may be GNSS, DME/DME, or DME/DME/IRU. All company aircraft are RNAV-1/2 compliant.

The minimum equipment required for RNAV 1 & 2 Terminal Area procedures are:

- 1 FMGC
- 1 MCDU
- 1 GPS or 1 VOR/DME or 2 DMEs to update the FM position
- 2 IRS
- 1 FD in NAV mode
- 2 NDs (the temporary display of ND information via PFD/ND switch is permitted on one side)

RNP-4

Developed for operations in Oceanic and Remote airspace, as such, does not require any ground-based navigation aid infrastructure. GNSS is the primary navigation sensor to support RNP-4, either as a stand-alone navigation system or as part of a multi-sensor system. The minimum operational requirements to enter RNP-4 airspace are at least two fully serviceable independent Long-range Navigation systems capable of navigating to RNP-4. The navigation specification requires voice communications or CPDLC and ADS-C to support the minimum route spacing of 30 NM x 30 NM. All company aircraft are NOT RNP-4 compliant yet.

ATC must be informed immediately of any deterioration or failure of the navigation equipment which causes a downgrade of navigation performance (FM message NAV ACCURACY DOWNGRADE) and/or any deviation required for a Contingency procedure. ATC may require the aircraft to descend to a lower than optimum flight level to maintain separation from other traffic on the same route.

The minimum equipment required to operate in RNP 4 airspace includes 2 independent Long range Navigation Systems (LRNS):

- 2 FMGC
- 2 MCDU
- 2 IRS
- 2 ND
- 1 GPS

RNP-1

Basic RNP-1 or P-RNAV (Precision Area Navigation) is applicable to en route and terminal area operations. The basic specification is intended to allow connecting routes to be developed that link the en route environment with terminal areas having little or no radar coverage and a low-to-medium traffic density. GNSS is the primary navigation sensor for Basic RNP-1 and RAIM is used to ensure integrity. Strict safety assessment is required for use of DME/DME navigation based on RNAV. The minimum requirements for Basic RNP-1 / P-RNAV are at least one FMGS, with one GNSS or one DME.

ATC must be informed immediately in the event of equipment degradation below the minimum requirement together with the proposed course of action, e.g. request Radar vectors. All company aircraft are compliant.

For Terminal procedures requiring Basic-RNP 1 capability, the minimum required equipment are:

- 1 FMGC
- 1 MCDU
- 1 GPS
- 2 IRS
- 1 FD in NAV mode
  - On the PF side both the PFD and ND must be operative
  - On the PN-F, at least one of the 2 EFIS must be operative (to enable temporary display of ND information through the PFD / ND switch)

RNP APCH

The navigation specification includes RNP approach procedures and RNAV (GNSS) approach procedures designed with a straight segment, the accuracy normally being >0.3. GNSS is the primary navigation aid supporting RNP APCH procedures. Manual inputting of the RNP value is not permitted whilst conducting an RNP approach. The automatic updating to the higher accuracy forms part of the FM database validation. The acceptability of the risk of loss RNPAPCH capability due to satellite failure or loss of onboard monitoring and alerting function is considered in the procedure design.

The missed-approach segment may be based on RNAV or conventional navigation procedures. The RNP APCH navigation specification does not include specific requirements for communication or surveillance. Company Policy is that unless visual, a GA shall be executed immediately if either a GPS advisory message or (FM message NAV ACCURACY DOWNGRADE) is displayed.

8.3.2.8 RNAV Operations

8.3.2.8.1 Flight Preparation

During the flight planning phase, the availability of the navigation Infrastructure required for the intended operation, including any non-RNAV contingencies, must be confirmed for the period of intended operation. NOTAMs or operator briefing material that could adversely affect system operation or availability/ suitability of procedures during all phases of flight must be taken into account as follows:

For RNAV (GNSS) / RNAV (GPS), approaches not prohibited by company instruction or NOTAM. Sufficient means to navigate and land at destination or alternate in case of loss of RNAV (GNSS)/ RNAV (GPS) airborne capability must be available.

When RNAV (GNSS) / RNAV (GPS) missed approach procedures are based on conventional means the appropriate airborne and ground equipment is installed and operational.

For RNAV (GNSS) / RNAV (GPS) approaches availability of RAIM must be checked and not more than 5 minutes continuous loss of fault detection at the estimated time of arrival may be predicted.

Availability of the onboard navigation equipment necessary for the route to be flown must be confirmed.

Availability of the ground- and/or space-based navigation aids necessary for the route to be flown must be confirmed.

Where dual RNAV systems are required for a specific terminal RNAV procedure, the availability of dual RNAV systems must be confirmed.

If a stand-alone GPS is to be used for P-RNAV, the availability of RAIM must be confirmed.

RAIM levels required for PBN operations can be verified either through NOTAMs (where available) or through prediction services. In the event of a predicted, continuous loss of appropriate level of fault detection of more than five minutes of any part of the RNAV1 or RNAV 2 PBN operation, the flight plan should be revised (e.g. delaying the departure or planning a different departure procedure).

The onboard navigation database must be appropriate for the region of intended operation and its validity must be confirmed.

8.3.2.8.2 In-Flight Operation

After system initialization the aircraft position must be verified.

For terminal area navigation based on RNAV the active flight plan should be checked by comparing the charts, SID or other applicable documents, with the map display and the MCDU. This includes confirmation of the waypoint sequence, reasonableness of track angles and distances, any altitude or speed constraints, and, where possible, which waypoints are fly-by and which are fly-over. If required by a procedure, a check will need to be made to confirm that updating will use a specific navigation aid(s), or to confirm exclusion of a specific navigation aid. A procedure shall not be used if doubt exists as to the validity of the procedure in the navigation database.

Should a discrepancy between a published procedure and the one recalled from the navigation database be detected the published procedure, including any altitude or speed constraints, shall be followed.

Prior to commencing take off, the RNAV system must be verified to be available and operating correctly with airport and runway data correctly loaded. Unless automatic updating of the actual departure point is provided, manual initialization on the runway by means of a runway update is required. Where GPS used, the signal must be acquired and verified before the take-off roll commences and GPS position may be used in place of the runway update. If the departure point cannot be automatically updated or manually initialized the flight shall depart using conventional navigation and transition to RNAV when airborne and a navigational performance level appropriate to the airspace or route used has been achieved.

During terminal area navigation based on RNAV and where feasible flight progress should be monitored for reasonableness by cross-checks with conventional navigation aids. During descent the use of RNAV navigation is limited down to MOCA/MORA/MSA and intermediate approach altitude unless certification and operational approval for RNAV approach operations has been achieved.The creation of new waypoints by manual entry into the RNAV system by the flight crew would invalidate the route and is not permitted.

Pilots should not request or file PBN routes unless the flight can satisfy all applicable criteria. If a flight not meeting these criteria receives a clearance from ATC to conduct a PBN procedure, the pilot must advise ATC that the clearance cannot be accepted and must request alternate instructions.

On PBN routes with RNP 5.0 or less the minimum level of automation is flight director guidance with roll mode coupled to RNAV track (e.g. NAV).

On any PBN route the XTK should be limited to ±½ the RNP.

The pilot must notify ATC when the actual navigation performance ceases to meet the RNP for the PBN route flown.

While operating on a PBN route, if ATC issues a heading assignment temporarily taking the aircraft off a route, the pilot should not modify the flight plan in the RNAV system until a clearance is received to rejoin the route or the controller confirms a new route clearance. If required, DIRECT-TO and/or course only to the currently active waypoint may be inserted.

When the aircraft is not on the published route, the specified accuracy requirement does not apply.

8.3.2.8.3 RNAV (GNSS) Approach

Prior to commencing an RNAV (GNSS) or RNAV (GPS) or procedure, the flight crew must:

- Perform a new RAIM availability check if ETA is more than 15 minute different from ETA used during pre-flight planning
- Comply with ATC instruction, except that manual entry of coordinates by flight crew for terminal area operations is prohibited and 'Direct to' clearance to FAF is prohibited.

Note: *Direct to clearances may be accepted to IAF provided that resulting track change at IAF does not exceed 45 degrees.*

- Select the approach from the navigation database and validate it by comparing it to the Route Manual.
- Must not revise the lateral definition of flight path between FAF and Missed approach point (MAPt).
- Ensure that GPS is available, and in use for position updating.
- Set or confirm that the RNP is applicable for the approach (0.3 nm).
- RNAV (GNSS) approach - Cold Weather Correction Policy
- RNAV (GNSS) approach cold temperature altitude corrections are not approved.
- Where published a RNAV (GNSS) approach may be flown to the minimum temperature published on the applicable approach plate.
- Where no minimum temperature is published an RNAV (GNSS) approach may not be flown below 0 C.(need to change)

Operations Policy

If missed approach is based on terrestrial navigation aids the applicable aids must be available and tuned or radar vectors will be required.

It is strongly recommended that all RNAV (GNSS) or RNAV (GPS) approaches are conducted using LNAV and Managed Descent modes of automation.

Crews are required to be established on the final approach course no later than the FAF, before starting descent. (ANP within RNP, as depicted by onboard navigation display).

Should a contingency procedure require the reversion to navigation using conventional navigation aids the necessary preparations shall be made in advance.

Contingency Procedures

If at any time it becomes apparent that the required navigational performance for the airspace or route used can no longer be maintained ATC shall be informed immediately. The flight should continue using a route not requiring more than the available level of navigational performance. Navigation shall be based on conventional navigation aids or radar vectors if a level of RNAV navigation suitable to the airspace or route used cannot be maintained. The flight shall not be continued below MOCA/MORA/MSA unless the aircraft's present position can be positively established.

In the event of communications failure the flight should continue with the RNAV procedure in accordance with the published lost communication procedure.

Procedures for specific failures of navigation equipment are described in the FCOM.

Reporting

Significant incidents associated with the operation of the aircraft which affect or could affect the safety of RNAV operations need to be reported according to HKCAD 382 "Mandatory Occurrence Reporting Scheme".

The report must be fully documented for further investigation and correctives actions:

- Approach designation and airport.
- A/C type, MSN, GW, wind/temp.
- Navigation database cycle.
- Pilot selections, FMA, ND, MCDU displays.
- Description of anomaly, flight path.
- DFDR/QAR reading.

8.3.2.9 Reduced Vertical Separation Minimum (RVSM)

Significant benefits are gained by aircraft operators and air traffic services (ATS) providers with the implementation of RVSM. These benefits include improved utilization of airspace and fuel savings and reduction in ground delays. HKEA is approved for RVSM operation. With RVSM Vertical Separation Minimum is reduced to 300m (1000 ft) between FL290 and FL410 inclusive. Where RVSM is implemented the airspace between FL290 and FL410 is referred to as RVSM airspace. Dependent on each region/country minor variation in RVSM airspace definition exist, e.g. RVSM airspace in China is between FL291 and FL411.

Crew must be trained for RVSM operations by completing the HKEA RVSM Training Course.

8.3.2.9.1 Required Equipment For Vertical Navigation At RVSM levels

- Two Air Data Reference (ADRS) and 2 Display Management computers (DMCs) for independent altitude indications. The Standby Altimeter is not acceptable for use in RVSM operations.
- 1 ATC Transponder with Altitude Reporting Mode.
- 1 Flight Warning Computer (FWC) Altitude alert system
- 1 Autopilot system
- 1 Flight Control Unit (FCU) channel for altitude target selection and OP CLB . OP DES mode engagement.
- 2 PFDs

If any of the above is inoperative and cannot be rectified prior to departure, alternative routes or non - RVSM Flight Levels should be planned.

8.3.2.9.2 Operational Procedures

8.3.2.9.2.1 Pre-flight Procedures

HKEA pre-flight procedures meet the requirements for flights planned to enter RVSM Airspace.

8.3.2.9.2.2 In-Flight Procedures

Prior to entering RVSM airspace the crew should review the status of the required systems listed below:

- For Air Data/Altimetry requirements refer to individual FCOM.
- The autopilot must be capable of holding a selected altitude.
- The altitude alerting system must be operative.
- The primary altimeters must agree within +/- 200 FT.

In the event that any of the above systems are not serviceable, or the primary altimeter readings differ by more than 200 FT, ATC must be advised. ATC will then either allocate a non RVSM level or ensure increased separation from other RVSM traffic.

When within RVSM airspace:

Two primary altimeters must at all times agree within plus or minus 200 FT. If at any time the readings of the two primary altimeters differ by more than 200 FT, the aircraft's altimetry system should be considered defective and ATC informed as soon as possible.

During climb or descent the aircraft should not be allowed to overshoot or undershoot the cleared level by more than 150 FT.

In the vicinity of other traffic or areas of high traffic density, rates of climb should be reduced to less than 1,000 FT/MIN when within 1,000 FT of cleared Flight Level. This will avoid nuisance TCAS alerts from other traffic triggered by high vertical closure rates.

When flying within RVSM Airspace pilots may offset from cleared track by up to a maximum of 2 NM in order to alleviate the effects of wake turbulence. ATC must be advised and the aircraft returned to track as soon as practicable.

Note: *In this contingency circumstance, ATC will not issue a clearance for the 2 NM offset.*

RVSM flight levels published on en-route charts are the levels available for filing the ATC flight plan.

There is nothing to prevent a Commander requesting, or ATC allocating, any available flight level, subject to traffic.

An example of this is in the South China Sea area where published levels indicate that only even flight levels are available on the north/south parallel route structure. Normally the odd flight levels are reserved for eastbound/ westbound crossing traffic, however subject to ATC co-ordination odd flight levels may be made available for north or southbound traffic on these routes.

8.3.2.9.2.3 Equipment Failures

The following equipment failures must be communicated to ATC as soon as practicable:

- Loss of one or more primary altimetry systems.
- Failure of all automatic altitude control systems.

In the event of equipment failures the possible courses of action include.

Continuing in RVSM airspace provided that the aircraft can maintain the cleared flight level.

- Requesting ATC clearance to climb above or descend below RVSM airspace if the aircraft cannot maintain the cleared flight level, and ATC cannot establish increased vertical, longitudinal or lateral separation.

Alert other aircraft using frequencies 121.5 MHz, 123.45 MHz (NAT) and 123.45 MHz (PAC).

- At any time the aircraft is unable to maintain its cleared flight level for whatever reason i.e. severe turbulence, engine failure or degradation of the aircraft's altimetry system, TCAS should be used to assist in determining the location of any proximate traffic.

It should be noted that the relative altitude indications on TCAS may not be reliable if the aircraft's own altimetry system is degraded. In all such cases all available aircraft lights should be switched on.

8.3.2.9.2.4 Weather Deviations

If a track deviation for weather is required and an ATC clearance cannot be obtained the following procedures must be followed:

If possible deviate away from an organized track system. Broadcast intentions on 121.5 and the inter pilot air to air frequency 123.45. All available exterior lights should be switched on and TCAS should be monitored for conflicting traffic.

If the deviation is less than 10 NM, aircraft should remain at the level allocated by ATC.

If the deviation is greater than 10 NM, when the aircraft is 10 NM from track, initiate a level change based on the following criteria:

When returning to track, be at the previously assigned level when the aircraft is within approximately 10NM of the centre line.

Table 8-20:

Route Centre Line Track	Deviation > 10nm	Level Change
EAST 000 - 179 MAGNETIC	LEFT RIGHT	DESCENT 300FT CLIMB 300FT
WEST 180 - 359 MAGNETIC	LEFT RIGHT	CLIMB 300FT DESCENT 300FT

8.3.2.9.2.5 Reporting Of Deviation From Cleared Flight Level

If a flight deviates by more than 300 FT from a cleared altitude or level within RVSM airspace, crews should complete an ASR for any such altitude deviation.

8.3.2.9.2.6 TCAS Alerts

TCAS alerts and warnings should always be followed. All RAs should be reported to ATC. Under certain conditions, TAs may be generated by aircraft correctly separated vertically 1000 FT above or below.

8.3.2.9.2.7 Pre-flight Checklist Prior To Fly In RSVM Airspace

Confirm that there are no ADD's that would affect flight in RVSM airspace.

8.3.2.10 Automatic Dependent Surveillance Broadcast (ADS-B)

8.3.2.10.1 ADS-B concept

The ADS-B concept is described in Aircraft FCOM

8.3.2.10.2 Operational Considerations

The ICAO flight plan shall be filed including the appropriate ADS-B designators.

In all cases, flight crews should comply with the surveillance provisions, schedules and relevant procedures contained Route Manual and as amended by NOTAM from time to time.

Direct controller-pilot voice communications should be available at all times. R/T phraseology for ADS-B as described in Route Manual Flight Supplement Guide must be used.

The ICAO defined format for entry of the Aircraft Identification (HKE###) corresponding to item 7 of the ICAO flight plan must be inserted. This consists of no more than seven characters. If the aircraft identification consists of less than seven characters, no zeros, dashes or spaces should be added.

When there is not an independent Flight Deck Control selection between the ADS-B function (ADS-B on/off) and the ATC transponder function, the crew must be fully aware that disabling the ADS-B function will also lead to disabling the TCAS/ACAS function. Unless an independent flight deck control selection for

ADS-B is possible the crew must reply UNABLE to ATC instructions requesting STOP ADSB TRANSMISSION, STOP SQUAWK or STOP ADSB ALTITUDE.

8.3.3 Altimeter Setting Procedures

8.3.3.1 Altimeter Setting Datum

QNH is to be used for all approaches and departures or QFE if required.

Half millibar settings passed by ATC should be rounded down to the nearest whole millibar. When either or both barometric settings are changed, both datum indicators must be cross checked.

8.3.3.2 Glareshield Altitude Settings

Clearance to an “odd” altitude other then those listed on the company “Flight Level Allocation In China” card or the “Navtech” Approach Charts in China are to be rounded up to the nearest 100 ft when the altitude is set in the datum window (e.g. 2934ft should be set as 3000). This is to ensure that obstacle clearance parameters are not infringed.

8.3.3.3 Procedures

8.3.3.3.1 Before Take-Off

Set reported QNH (or QFE, if required) and compare altitude readings against airfield elevation for acceptable tolerance as published in the FCOM.

Allowance must be made for the fact that the aircraft may be at a position which is a different elevation from the designated elevation. At HKG airport the designate location for pre-flight checks is the apron. During flight no allowance is to be made for an error that is within tolerance at the pre-flight check.

8.3.3.3.2 After Take-Off

When cleared to a Flight Level the altimeter barometric settings may be set to Standard. However, if still below the 25 nm MSA, consideration should be given to delaying setting STD until above MSA to ensure correct terrain clearance in the event of an emergency. In any case, the Standby Altimeter may remain on QNH (or QFE, if required) until Transition Altitude for terrain clearance and altitude reporting purposes. Company recommendation is to change to Standard at or above the actual transition altitude.

8.3.3.3.3 En route

Both barometric settings are to be set to the Standard setting when at or above Transition Altitude except that, at the Commander's discretion, the Standby altimeter may be on area QNH for terrain clearance checks.

8.3.3.3.4 Top Of Descent

Prior to Transition Level, at the Commander's discretion the Standby altimeter barometric setting may be on area QNH for terrain clearance checks.

8.3.3.3.5 Transition Level

Both pilots' barometric settings are to be set to area QNH (or QFE, if required) at or before passing the Transition Level (Company Recommendation).

When clearance is received to descend from a Flight Level to an altitude and the QNH is given, the QNH is to be set unless further Flight Level vacating reports have been requested by ATC. Both pilots barometric settings must always be set to QNH (or QFE, if required) for landing regardless of which pilot is operating the controls. Standard altitude calls required of PM on approach are to be made using his own altimeter system.

8.3.3.3.6 Surveillance Radar Approaches

Advisory heights on surveillance radar approaches are normally based on QNH. If possible, the radar controller should be requested to pass advisory heights based on QNH at those airfields where QFE is used.

8.3.3.4 Metric Altimeter

Metric altimeter readout on the PFDs provides readouts of the Metric Flight Altitude / Level for height maintained when operating in the PRC.

The primary reference for Altitude / Flight Levels is the indication on the primary altimeters. After being assigned an Altitude / Level when operating in the PRC, the Flight crews are to cross reference the Metric Conversion card / Approach charts and the relevant Altitude / Level equivalent in feet is to be set on the Glareshield.

8.3.3.4.1 Special Procedures For China

Meters, with QFE, QNH or Standard set, are used in the PRC for vertical separation. Below the Transition Altitude / Level clearances may be referenced to either QFE or QNH.

8.3.3.4.2 Procedure When Operating Below Transition Altitude / level

QNH in Use:

The altimeter setting and the standby altimeter are to be set to QNH and a cross check of altitude and standby altimeter carried out. If the cleared metric altitude is shown on the conversion table on the relevant arrival / approach chart in feet, this is to be set on the Glareshield, in accordance with the basic procedure described above, and the cross check called in meters. There may be a slight difference in the metric conversion table on the arrival chart compared with the approach chart. The conversion used on the conversion table should be used above 600 meters. If the cleared altitude is not shown on the conversion table, the conversion on the arrival/approach chart is to be used to convert meters to feet, rounded to the nearest 100 feet (0-49 ft round down, 50-99 round up).

QFE in Use:

Prior to operating with QFE in use the Commander shall have received appropriate training and/or familiarization.

If QFE Altitude Reference for flight instruments and navigation can be selected, this must be done on ground during pre-flight preparation or during descent at transition level.

If QFE Altitude Reference cannot be selected, It is vital that the airfield elevation is added to the metric height to obtain the cleared altitude referenced to QNH.

The Glareshield altimeter setting and the standby altimeter are to be set to QNH and a cross check carried out. The metric altimeter (if fitted) is to be set to QFE. If the cleared metric height (QFE) is shown on the QNH (QFE) Metric conversion table on the relevant arrival / approach chart in feet, this is to be set on the Glareshield, in accordance with the basic procedure described above. Any odd feet are to be rounded up to the nearest hundred. The cross check is called in meters. There may be a slight difference in the metric conversion table on the arrival chart compared with the approach chart. The conversion used on the conversion table should be used when operating within the coverage of that procedure. If the cleared height (QFE) is not shown on the conversion table, the conversion on the arrival/approach chart is to be used to convert meters to feet, rounded to the nearest 100 feet (0-49 ft round down, 50-99 ft round up). This is to be set on the Glareshield as above.

8.3.4 Altitude Alerting System Procedures

The purpose of the “Altitude Alerting System” is to alert the flight crew by the automatic activation of a visual and / or an aural signal when the aircraft is about to reach or is leaving the pre-selected altitude / flight level. The system and its operation will ensure accurate altitude adherence during all phases of flight.

For detailed operating procedures, refer to the FCOM for the appropriate aircraft.

8.3.5 Ground Proximity Warning System Procedures

Controlled flight into terrain (CFIT) remains a major cause of accidents to commercial flights. Many of the aircraft that have suffered CFIT accidents were fitted with GPWS, but the crew either ignored the warning or failed to respond adequately. Complacency when operating advanced and sophisticated equipment is well documented, and is at its most dangerous when operating below MSA. Statistics show that a large proportion of CFIT accidents occurred inside the outer marker. Awareness of terrain clearance is paramount, and if any doubt exists for either pilot the facts must be established and agreed by both pilots.

All Company aircraft are equipped with EGPWS. It is to be used throughout the flight, unless it has become unserviceable and the MEL for the particular aircraft permits it to remain so for a specific period.

Note: *For detailed operating procedures and information refer to the FCOM for the particular aircraft.*

8.3.6 Policy And Procedures For The Use Of TCAS / ACAS

8.3.6.1 Collision Avoidance

Under visual conditions all flight crew is to maintain vigilance for conflicting visual traffic even under radar control.

8.3.6.2 Airborne Collision And Avoidance System

Airborne collision and avoidance systems (ACAS) provide flight crews with an independent back up to visual search and the ATC system, by alerting the crew to collision hazards, independent of any ground based aids which may be used by ATC for such purposes. All HKEA aircraft are fitted with the TCAS system and it is to be used at all times, when airborne, in accordance with the procedures laid down in the FCOM for the applicable aircraft.

TCAS (Traffic Alert and Collision Avoidance System) is the specific equipment which is currently fitted to meet this requirement. TCAS provides the crew with collision maneuver advice in the vertical plane through the following alerts:

Traffic Advisories (TAs), which indicate the approximate position relative to the subject aircraft, either in azimuth only, or azimuth and altitude, of a nearby transponding aircraft that might become a threat.

Respond to TAs by attempting to establish visual contact with the intruder aircraft and any other aircraft that might be in the vicinity. Co-ordinate with other crew members to assist in searching for traffic. Do not deviate from an assigned clearance based only on TA information. When traffic is acquired visually, continue to maintain safe separation until the traffic is clear of conflict.

Resolution Advisories (RAs), which recommend manoeuvres or manoeuvre restrictions in the vertical plane to resolve conflicts with aircraft transponding SSR Mode C altitude.

Respond to RAs by immediately disconnecting the auto-pilot and FDs off, direct attention to the RA displays and manoeuvre as indicated, unless by doing so would jeopardize the safe operation of the flight or unless there is definitive visual acquisition of the aircraft causing the RA.

The flight crews must always follow the TCAS RA orders in the correct direction as follows:

The PF disconnects the AP, and smoothly and firmly follows the Vertical Speed Indicator (VSI) green sector within 5 s, and request that both FDs be disconnected.

Note: *For detailed operating procedures, system depiction and aural announcements refer to the FCOM.*

8.3.7 Policy and Procedures for the In-flight Fuel Management

8.3.7.1 In-Flight Fuel Checks

The Commander is to ensure that the fuel consumption and fuel remaining on board is closely monitored through in-flight fuel checks. At each waypoint, the crew must record the Actual Time of Arrival (ATA) on OFP for accurate flight log. On flights over 90 minutes a fuel check is to be made at least hourly, suggest using frequency change waypoints as fuel check points. Fuel checks should be performed over actual waypoints, unless tracking to a direct to WPT with a time interval greater than 60 minutes. On shorter flights intermediate fuel check is to be made at an appropriate time when the work load is low.

At each check the fuel remaining and time over way point must be recorded on the OFP and evaluated so as to:

- compare actual and planned consumption;
- check that the fuel remaining will be sufficient to complete the flight satisfying the CMR requirements listed below;
- determine the expected fuel remaining on arrival at destination;

Note: *Fuel on board (remaining) numbers should be derived from actual displayed fuel gauge indications not MCDU/FMGC calculated fuel remaining.*

8.3.7.2 Company Minimum Reserve (CMR)

This is the minimum fuel on arrival at the destination missed approach point (MAP). It is the sum of:

- The fuel required to proceed to the chosen alternate airport; and
- Contingency fuel applicable to the above; and
- Fuel to hold for 30 minutes at a height of 1500 ft at the aircraft's planned landing weight at the alternate.

8.3.7.3 Minimum Reserve (MR)

For operations under the Hong Kong AOC, the Minimum Fuel with which the aircraft must land is an amount equal to 30 minutes holding at a height of 1500 ft at the planned landing weight.

8.3.7.4 En Route Fuel Requirements

For flights that use normal fuel planning, the fuel expected to remain at the MAP of the intended destination should not be less than CMR.

For flights that make use of ERA at the planning stage, on passing overhead or abeam the ERA, the fuel expected to remain at the MAP of the intended destination should not be less than CMR.

For flights that use the remote aerodrome condition at the planning stage, on passing the latest point of diversion the fuel expected to remain overhead the intended destination should not be less than the holding reserve. Crew must, before passing this point, obtain the weather conditions existing at the destination and a current forecast for the time of expected arrival.

For flights that use the reclearance in flight procedure at the planning stage, when passing over or abeam the nominated destination aerodrome.

(reclearance point), the fuel expected to remain at the MAP of the original destination should not be less than CMR.

8.3.7.5 Guidelines in Assessing on Board Fuel Vs Fuel Requirements

8.3.7.5.1 Fuel Expected At MAP

As a general guideline, fuel expected to remain at the MAP of the destination can be calculated as fuel on board less the sum of following:

- Trip fuel for the remainder of the flight to destination;

- Contingency fuel for the remainder of the flight;

It must be stressed that even if the estimated fuel remaining on arriving destinations is less than CMR at a certain fuel check, the flight may still continue to the destination provided that the Commander, having assessed the pre flight fuel planning used, the fuel burn trends, en route weather forecasts and ATC conditions, expects that fuel remaining at the MAP will not be less than CMR, or he is able to invoke one of the following.

8.3.7.5.2 Fuel Remaining Close To Minimum Required

A Pilot shall declare 'MINIMUM FUEL' when having committed to land at a specific airport, the pilot calculates that any change to the existing ATC clearance to that airport may result in landing with less than planned final reserve fuel. Pilot should not expect any priority. The aircraft can still operate normally in accordance with the last clearance, but is committed to land at the nominated airport and cannot divert to another airport. However, if the aircraft is subject to any subsequent delay, or when an estimated approach time

(EAT) has been issued and additional delay is expected, an emergency situation could develop.

A Pilot shall declare 'MAYDAY, MAYDAY, MAYDAY FUEL' when the calculated usable fuel predicted to be available after landing at the nearest airport is less than the planned final reserve fuel (an amount equal to 30 minutes holding at 1500ft). This is an emergency and the aircraft shall be given priority over other traffic in the landing sequence.The aircraft will be committed to a landing, as in the event of any delay or a go-around, there may be insufficient fuel remaining for a safe landing.

Standard Phraseology

(c/s = aircraft call sign)

Pilot	(c/s) MINIMUM FUEL
ATC	(c/s) ROGER NO DELAY EXPECTED or EXPECT (delay info)
Pilot	(c/s) MAYDAY, MAYDAY, MAYDAY FUEL
ATC	(c/s) MAYDAY FUEL ROGER

Holding Procedures

ATC will advise pilots of 'no delay' to commencing an approach when any anticipated traffic management, e.g. radar vectors or holding, will be for a period of Up to 15 minutes. (This procedure caters for sequencing traffic after a runway change, the repositioning of traffic after a missed approach or a brief peak traffic period, etc.) However, if an aircraft is instructed to hold, prior to entering the holding pattern the pilot will be given an EAT, or a time at which to expect onward clearance, no matter what the expected delay.

Arrivals To VHHH

Adverse weather conditions that may affect VHHH can be extensive and similarly affect the nearby airports at Macau, Shenzhen and Guangzhou. Under such conditions, if any of these airports have been nominated as an alternate consideration should be given to an en-route diversion to another airport prior to entering Hong Kong airspace.

8.3.7.5.2.1 Within One Hour From Destination

The Commander may continue a flight to a destination when full diversion and holding fuel will no longer be available provided that the fuel is sufficient to:

- Fly to destination with a 5% contingency plus fuel for approach and landing
- Hold for 30 minutes at 1,500 ft at the destination

Additional requirements are:

- The aircraft is one hour or less from destination, and
- There must be at least two geographically separate runways available for use that meet the performance criteria, and
- The actual weather and that forecast for the flight's ETA at the destination must be at, or better than, the alternate planning minima for the non-precision approach aid with the higher minima serving the two runways being considered above, and the surface wind is within the normal crosswind limits.
- There are no known or probable ATC delays.

8.3.7.5.2.2 From Top Of Descent (TOD)

From the TOD a Commander may continue to the intended destination providing the aircraft can arrive with a Minimum Fuel (MF) equal to 30 minutes holding at a height of 1500ft at the planned landing weight as stated in Chapter 8.3.7.4; and

There must be at least two geographically separate runways available for use that meet the performance criteria, and

The actual weather and the forecast for the flights ETA at the destination must be at, or better than, the alternate planning minima for the non-precision approach aid with the higher minima serving the two runways being considered above and, the surface wind is within the normal crosswind limits for the aircraft type.

8.3.7.5.2.3 Overhead The Destination

When close to overhead the destination, for example in a holding pattern that serves directly the approach to landing procedures, a Commander may continue to the intended destination provided that the fuel remaining is not less than MF and that conditions listed in above are satisfied.

8.3.7.5.2.4 Low Fuel State - Declaration of Emergency

If at anytime it becomes apparent that the fuel remaining will reach Minimum Fuel and an assured landing is not imminent, the Commander is to declare an emergency.

8.3.7.5.2.5 Fuel Balancing

When the fuel balancing procedure is being accomplished, both pilots must monitor the operation. The estimated time required for completion of the fuel balancing must be noted on the OFP and monitored using the on-board stop watch facility. The procedure for Fuel Cross Feed In-fight is contained in the aircraft QRH (Fuel Imbalance).

8.3.8 Adverse And Potentially Hazardous Atmospheric Conditions

8.3.8.1 Typhoon Procedures

8.3.8.1.1 General

It is not possible to predict whether it will be permitted or advisable to continue flying into / out of an airport in typhoon conditions. This will depend on the wind direction, extent and severity of turbulence and wind shear, and amount of precipitation. It is certain that conditions meriting the hoisting of a Typhoon Signal must be treated with extreme caution and respect.

8.3.8.1.2 Additional Fuel and Alternate Airport

Commanders must ensure that they have as much additional fuel for holding as possible when the intended destination is affected by a typhoon.

Alternate airports close to HKG are likely to become saturated by diversions at an early stage in typhoon conditions. Advice on the status of alternates will be available from FOCC. Commanders should be aware of the potential requirement to use a distant alternate, either due to saturation of the close in alternates or due to Company commercial considerations.

Additional guidelines in the selection of distant alternate airports and additional fuel to be carried may be issued from time to time through FCON.

8.3.8.2 Thunderstorms

Avoid flying through thunderstorm activity whenever possible. However, where this is not possible such flight may be carried out if recommended techniques set out below are employed.

Irrespective of the equipment fitted, the latest meteorological forecasts and actual weather reports should be used to plan routes along which the risk of a thunderstorm encounter is low. If, despite these precautions, a Commander finds himself committed to flying through an area of thunderstorm activity, the following procedures are recommended.

8.3.8.2.1 Approaching the Area of Thunderstorms

When approaching the area of thunderstorms:

- Select the seat belt signs on, suspend all cabin services and ensure crew members' and passengers' safety belts / harnesses are firmly fastened with all loose articles properly stowed or secured;
- One pilot should control the aircraft and the other monitor the flight instruments and electrical supplies continuously;
- Select an altitude for penetration whilst ensuring adequate terrain clearance;
- Keep the Autopilot ON, when the thrust changes became excessive: Disconnect Autothrust. Set the thrust to give the recommended speed (refer to PRO-ABN-MISC [QRH] Thrust setting (N1) for recommended speed).
- Select anti-icing if required;

- Disregard any radio navigation indications subject to static interference e.g. ADF;
- Turn the flight deck lighting fully on and lower the crew seat and sun visor to minimise the blinding effect of lightning flashes;
- Monitor the weather radar in order to select the safest track for penetration.

8.3.8.2.2 Within The Storm Area

When within the storm area:

- Maintain engagement of the auto-pilot as long as practical. If manual control becomes necessary, concentrate on maintaining a constant pitch attitude appropriate to climb, cruise or descent, by reference to the attitude indicators, avoid harsh or excessive control inputs. Do not be misled by conflicting indications on other instruments. Do not allow large excursion in the rolling plane to persist;
- Attempt to maintain the original heading;
- Do not correct for altitude gained or lost through up and down draughts unless absolutely necessary;
- If the crew flies the aircraft manually: Expect large variations in altitude, but do not chase altitude; Maintain attitude and allow altitude to vary.
- If negative "G" is experienced, temporary warnings (e.g. low oil pressure) may occur. These should be ignored;
- On no account climb in an attempt to get over the top of a storm.

8.3.8.2.3 Air Traffic Considerations

A pilot intending to detour round observed weather, when in receipt of an ATC service which involves responsibility for separation, should obtain clearance from or notify ATC so that separation from other aircraft can be maintained;

If for any reason the pilot is unable to contact ATC to inform the controller of his intended action, any manoeuvre should be limited to the extent necessary to avoid immediate danger and ATC must be informed as soon as possible;

8.3.8.2.4 Take-Off And Landing

The take-off, initial climb, final approach and landing phases of flight in the vicinity of thunderstorms may present the pilot with additional problems because of the aircraft's proximity to the ground. The maintenance of a safe flight profile in these phases can be difficult;

At the departure airport, if a thunderstorm is overhead or approaching, do not take off;

At the destination airport, if a thunderstorm is overhead or approaching, hold clear or divert if necessary;

Avoid severe thunderstorms even at the cost of diversion or intermediate landing. If avoidance is impossible, the procedures in these paragraphs should be followed.

8.3.8.3 Use Of Weather Radar

Avoid radar usage on the apron.

To be used during the whole flight, regardless of time of the day and weather conditions.

Correct management of tilt and gain cannot be overemphasized, even on the Multiscan weather radars.

Looking outside is still an effective tool towards weather avoidance.

See the FCOM for the use of the individual aircraft radars.

Flight Altitude	Radar Characteristics			
(1000 ft)	Shape	Intensity	Gradient of Intensity	
0 - 20	Avoid by 10 miles echoes with hooks, fingers, scalloped edges or other protrusions	Avoid by 5 miles echoes With sharp edges or strong intensities	Avoid by 5 miles echoes with strong gradients of intensity	Avoid by 10 miles echoes showing rapid change of shape or intensity
20 - 25	Avoid all echoes by 10 miles			
25 - 30	Avoid all echoes by 15 miles			
Above 30	Avoid all echoes by 20 miles			

Note: *If storms have to be over flown, always maintain at least 5,000 ft vertical separation from the cloud tops. It is difficult to estimate this separation but ATC or MET information on the altitude of the tops may be available for guidance.*

Note: *If the aircraft radar is operative, avoid any storm by 10 miles that by visual inspection is tall, growing or has an anvil top.*

Note: *Intermittently search ahead using different radar range and pitch selections to ensure that hazardous areas are identified in time to be avoided.*

Note: *Avoid flying under a cumulo-nimbus overhang. If such flight cannot be avoided, tilt the radar fully up occasionally to determine, if possible, whether precipitation (which may be hail) exists in or is falling from the overhang.*

8.3.8.4 Icing Conditions

When icing conditions are experienced in flight, mainly in the medium and lower altitudes, the anti-ice system must be switched on / checked on in accordance with the procedures in FCOM for the particular aircraft.

The possible build up of ice on the aircraft surface should be monitored by use of the appropriate external lights. If the build up of ice is considered excessive then every effort must be made to leave the icing conditions if possible. An increase in speed, if possible, will increase the airframe temperature and assist in shedding accumulated ice.

An approach and landing in severe icing conditions will require a speed increment to be added to the target approach speed to compensate for the effects of airframe icing.

After landing consideration should be given to not retracting the flaps and slats fully until a ground inspection for ice contamination has been carried out.

8.3.8.5 Cold Weather Operations And Icing Conditions

Preface

Aircraft performance is certified on the basis of a clean wing. Ice accretion affects wing performance. When the wing is clean, the airflow smoothly follows the shape of the wing. When the wing is covered with ice, the airflow separates from the wing when the Angle-Of-Attack (AOA) increases. Therefore, the maximum lift-coefficient is reduced. As a result, the aircraft may stall at a lower AOA, and the drag may increase.

The flight crew must keep in mind that the wing temperature of the aircraft may be significantly lower than 0 °C, after a flight at high altitude and low temperature, even if the Outside Air Temperature (OAT) is higher than 0 °C. In such cases, humidity or rain will cause ice accretion on the upper wing, and light frost under the wing. (Only 3 mm of frost on the under side of the wing tank area is acceptable.)

Exterior Inspection

When icing conditions on ground are encountered, and/or when ice accretion is suspected, the Captain should determine, on the basis of the exterior inspection, whether the aircraft requires ground deicing/anti-icing treatment. This visual inspection must take into account all vital parts of the aircraft, and must be performed from locations that offer a clear view of these parts.

Minimum Strip Width Required After The Clearance of Snow

The minimum width that must be free of snow banks must be equal to or greater than the minimum runway width limitation specified by the aircraft manufacturer.

Cockpit Preparation

The following systems may be affected in very cold weather:

- The EFIS/ECAM (when the cockpit temperature is very low)
- The IRS alignment (may take longer than usual, up to 15 min)

The probe and window heating may be used on ground. Heating automatically operates at low power.

Aircraft Ground De-Icing / Anti-Icing

De-icing / Anti-Icing Fluid

Deicing/anti-icing fluids must be able to remove ice and to prevent its accumulation on aircraft surfaces until the beginning of the takeoff. In addition, the fluids must flow off the surfaces of the aircraft during takeoff, in order not to degrade takeoff performance.

Several types of fluids can be used. These fluids have different characteristics:

Table 8-21: Fluid Characteristics

Type 1	Type 2, 3, 4
Low viscosity	High viscosity
Limited hold-over time	Longer hold-over time
Used mainly for de-icing	Used for de-icing and anti-icing

The holdover time starts from the beginning of the application of the fluid, and depends on the type of fluid, and on the nature and severity of precipitation. The flight crew should refer to applicable tables as guidelines. These tables must be used in conjunction with the pre-takeoff check.

Depending upon the severity of the weather, de-icing/anti-icing procedure must be applied either:

- In one step, via the single application of heated and diluted deicing/anti-icing fluid: This procedure provides a short holdover time, and should be used in low moisture conditions only. The holdover time starts from the beginning of the application of the fluid.
- In two steps, by first applying the heated deicing fluid, then by applying a protective anti-icing fluid: These two sprays must be applied consecutively. The holdover time starts from the beginning of the application of the second fluid.

Procedures

The following outlines the various procedures to be applied before and after spraying:

- All ENG and APU BLEED push buttons must be set to OFF and the DITCHING push button must be set to ON, to prevent any engine ingestion of deicing/anti-icing fluid.
- The aircraft can be deiced/anti-iced, with the engine and/or the APU running or off. However, the APU or the engine should not be started during spraying.
- The aircraft must be deiced/anti-iced symmetrically on both sides.
- After spraying, keep bleeds off for a few minutes, and perform a visual inspection of the aircraft surfaces.
- A deicing/anti-icing report must be filled out to indicate the type of fluid and when the spraying began.

After Start

- Keep the engine bleeds off, with the engines running at higher N1.
- Keep the APU running with the bleed off for a few minutes after spraying.
- The slats/flaps and flight controls can be moved, because they no longer have ice.

Taxi Out

On contaminated runways, the taxi speed should be limited to 10 kt, and any action that could distract the flight crew during taxiing should be delayed until the aircraft is stopped.

The following factors should be taken into account:

- At speeds below 20 kt: Anti skid deactivates.
- Engine anti-ice increases ground idle thrust.
- To minimize the risk of skidding during turns: Avoid large tiller inputs.
- On slippery taxiways: It may be more effective to use differential braking and/or thrust, instead of nose wheel steering.
- On slush-covered, or snow-covered, taxiways: Flap selection should be delayed until reaching the holding point, in order to avoid contaminating the flap/slat actuation mechanism.
- When reaching the holding point: The “Before Takeoff down to the line” checklist must be performed.
- The flight crew must maintain the aircraft at an appropriate distance from the aircraft in front.

For more details about this procedure, Refer to PRO-NOR-SOP-09.

Takeoff

Takeoff Performances

The use of FLEX thrust for takeoff on contaminated runways is prohibited.

If anti-ice is used at takeoff, the crew will apply the related performance penalty.

Slush, standing water, or deep snow reduces the aircraft takeoff performance because of increased rolling resistance and the reduction in tire-to-ground friction. A higher flap setting will increase the runway limited takeoff weight, but will reduce second segment limited takeoff weight.

Takeoff Roll

Before the aircraft lines up on the runway for takeoff, the flight crew must ensure that the airframe has no ice or snow.

Then, before applying thrust, the Captain should ensure that the nose wheel is straight. If there is a tendency to deviate from the runway centerline, this tendency must be neutralized immediately, via rudder pedal steering, not via the tiller. On contaminated runways, the flight crew should ensure that engine thrust advances symmetrically to help minimize potential problems with directional control.

Climb / Descent

Whenever icing conditions are encountered or expected, the engine anti-ice should be turned on. Although the TAT before entering clouds may not require engine anti-ice, flight crews should be aware that the TAT often decreases significantly, when entering clouds.

In climb, when the SAT decreases to lower than -40 °C, engine anti-ice should be turned off, unless flying near CBs.

If the recommended anti-ice procedures are not performed, engine stall, over-temperature, or engine damage may occur,

If it is necessary to turn on the engine anti-ice, and if ice accretion is visible because engine anti-ice was turned on late, then apply the following procedure:

- Set the ENGINE MODE selector to IGN
- Retard one engine, and set the ENG ANTI-ICE push button to ON
- Smoothly adjust thrust, and wait for stabilization
- Set the ENGINE MODE selector to NORM
- Repeat this procedure for the other engine

Wing anti-ice should be turned on, if either severe ice accretion is expected, or if there is any indication of icing on the airframe.

Holding

If holding is performed in icing conditions, the flight crew should maintain clean configuration. This is because prolonged flight in icing conditions with the slats extended should be avoided.

Approach

Ice Accretion

If significant ice accretion develops on parts of the wing, the aircraft speed must be increased

(Refer to PRO-NOR-SUP-ADV WXR minimum speed with ice accretion).

Barometer Indications

In cold weather, the atmosphere differs from the International Standard Atmosphere (ISA) conditions. The parameters that the ADIRS computes are barometric and ISA-referenced. When the atmosphere differs from the ISA conditions, the altitude and FPA computed by the ADIRS, and the associated indications on PFD (altitude, VDEV, ...) are not accurate.

Note: *The ADIRS computes the FPA from inertial data and barometric altitude.*

When the temperature is lower than ISA:

- The true altitude of the aircraft is lower than the altitude that the ADIRS computes.
- The FPA that the aircraft actually flies, is less steep than the FPA that the ADIRS computes.

If appropriate, the flight crew should therefore apply corrections on the altitudes and on the FPA (in vertical selected FPA mode), and they should be vigilant on the parameters that are displayed.

Altitude Correction

The flight crew should consider to correct the target altitudes, by adding the values that are indicated in the table below and advise the ATC:

Corrections to be Added (ft)			
	Airport Temperature (°C)		
Height ft	-10	-20	-30
500	50	70	100
1000	100	140	190
2000	200	280	380
3000	290	420	570

Corrections to be Added (ft)			
	Airport Temperature (°C)		
Height ft	-10	-20	-30
4000	390	570	760
5000	490	710	950

These values are calculated for an aerodrome at sea level, and are therefore conservative when applied at a higher altitude aerodrome. For aerodromes at sea level, these corrections corresponds approximately to 4 x Delta ISA x Height (ft)/1000.

The correction depends on the airport temperature, and on the height above the airport. This correction has to be added to the indicated altitude.

Along the Approach and Missed Approach, the flight crew should consider to apply the altitude corrections on the relevant minimum altitudes (all including FAF, Step-down altitudes, minima), and on the altitude for the altitude/distance check.

For Non Precision Approach in vertical managed mode: Refer to NO-130 Cold Weather Operations.

FPA Correction

When the temperature is lower than ISA, the FPA that the aircraft actually flies is less steep than the FPA that the ADIRS (ISA referenced) computes.

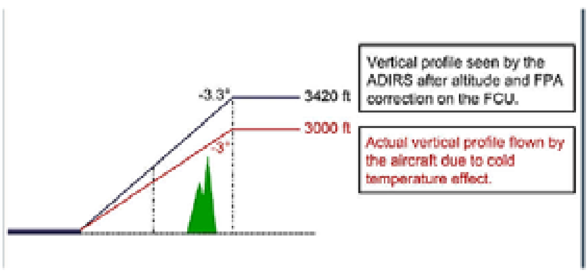
In vertical selected mode FPA, to correct the FPA for this ISA deviation effect, the flight crew should select on the FCU a FPA slightly different from the FPA that the aircraft needs to fly.

In any case, the check "altitude (corrected in temperature) versus distance" remains the reference.

Impact On The Indications

The barometric indications on PFD, namely the altitude and the VDEV are not corrected in temperature and are therefore not accurate.

EXAMPLE	Airport outside temperature -20 °C ; Delta ISA = -35 °C. Approach: FAF at 3 000 ft ; Final descent slope 3 °.



Landing

Obviously, landings should be avoided on very slippery runways. However, if it is not possible to avoid such landings, the following factors (linked to operations on contaminated runways) should be considered:

- Braking action
- Directional control

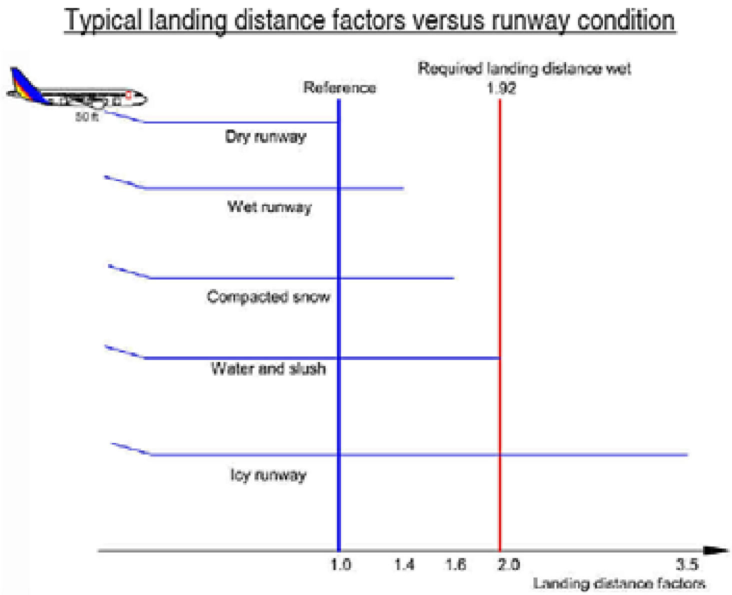
Braking Action

The presence of fluid contaminants on the runway has an adverse effect on braking performance, because it reduces the friction between the tires and the surface of the runway. It also creates a layer of fluid between the tires and the runway surface, and reduces the contact area. The landing distances, indicated in the QRH, provide a good assessment of the real landing distances for specific levels of contamination.

A firm touchdown should be made and MAX reverse should be selected, as soon as the main landing gear is on ground. Using reversers on a runway that is contaminated with dry snow may reduce visibility, particularly at low speeds. In such cases, reverse thrust should be reduced to idle, if necessary.

The use of MED auto-brake is recommended, when landing on an evenly contaminated runway. It is possible that the DECEL light on the AUTO BRK panel will not come on, as the predetermined deceleration may not be achieved. This does not mean that the auto-brake is not working.

In the case of uneven contamination on a wet or contaminated runway, the auto brake may laterally destabilize the aircraft. If this occurs, consider deselecting the auto brake.



Directional Control

During rollout, the sidestick must be centered. This prevents asymmetric wheel loading, that results in asymmetric braking and increases the weathercock tendency of the aircraft.

The rudder should be used for directional control after touchdown, in the same way as for a normal landing. Use of the tiller must be avoided above taxi speed, because it may result in nose wheel skidding, and lead to a loss of directional control.

When required, differential braking must be applied by completely releasing the pedal on the side that is opposite to the expected direction of the turn. This is because, on a slippery runway, the same braking effect may be produced by a full or half-deflection of the pedal.

Landing on a contaminated runway in crosswind requires careful consideration. In such a case, directional control problems are caused by two different factors:

- If the aircraft touches down with some crab and the reverse thrust is selected, the side force component of reverse adds to the crosswind component and causes the aircraft to drift to the downwind side of the runway.
- As the braking efficiency increases, the cornering force of the main wheels decreases. This adds to any problems there may be with directional control.

If there is a problem with directional control:

- Reverse thrust should be set to idle, in order to reduce the reverse thrust side-force component.
- The brakes should be released, in order to increase the cornering force.
- The pilot should return to the runway centerline, reselect reverse thrust, and resume braking

(Refer to PR-NP-SOP-250 ROLL OUT).

Taxi In

During taxi-in, after landing, the flaps/slats should not be retracted. This is because retraction could cause damage, by crushing any ice that is in the slots of the slats. When the aircraft arrives at the gate, and the engines are stopped, the crews should request a visual inspection to be performed to check that the slats/flaps areas are free of contamination. They may then be retracted, with the electric pumps.

Parking

At the end of the flight, in extreme cold conditions, cold soak protection is requested when a longer stop over is expected.

8.3.8.6 Turbulence

8.3.8.6.1 General

Turbulence is the result of atmospheric or environmental effects. En-route turbulence accounts for a substantial number of passenger and / or cabin attendant injuries and can occur at anytime and at any altitude. Turbulence can be expected, or it can be sudden and unexpected. Intensity can vary and is relative to the location of the occupants in the aircraft.

The following procedure emphasizes the importance of passenger and crew - member use of the seat-belts during flight and to ensure correct communication and coordination between flight and cabin crew.

In the event of light turbulence, the Commander should consider turn the Fasten Seat Belt sign “ON”.

The cabin crew shall make the appropriate announcement and shall ensure that all passengers are seated with their seat belts securely fastened.

In the event of moderate turbulence, the Commander shall turn the Fasten Seat Belt sign “ON” and cabin attendants shall secure loose items, verify lavatories unoccupied (only to be performed by Cabin Crew) and secure themselves in the crew seats. Communicate with the flight crew regarding the anticipated duration of the turbulence.

In the event of severe turbulence, the Commander shall turn the Fasten Seat Belt sign “ON” and make a P.A. announcement to advise cabin attendants to sit down, and cabin attendants should secure themselves immediately in the closest seat or by whatever means available. This could include sitting on the floor, when no other means is available.

The safety of the cabin attendants is paramount during turbulence conditions because if they are injured, passenger's needs cannot be met.

8.3.8.6.2 Pre-Departure Briefing

The Commander should include a weather / turbulence briefing with the standard pre-departure briefing, and the cabin crew should pay particular attention to turbulence forecasts. The weather briefing should contain the following:

- Discussion of the critical exposure periods (which could include take-off, cruise or known areas of turbulence and descent);
- Expected en-route weather;
- Forecast turbulence location (in terms of flying time and degree of reported turbulence);
- The time of weather updates to the senior cabin crew member;
- Communication of possible service modifications prior to expected turbulence encounters;
- Establishment of the “all clear” signal, usually done by a short PA by the Commander and / or by turning off the Fasten Seat Belt sign.

8.3.8.6.3 Passenger Briefing

During the welcome PA, the Commander should advise passengers to keep their seat belts fastened during the entire flight whilst seated.

Cabin Crew should re-enforce the Commander's brief regarding continued use of seat belts throughout the duration of the flight whilst seated. They should also instruct passengers using or intending to use blankets during flight to fasten the seat belt over the blanket.

8.3.8.6.4 Turbulence Procedures During Flight

While in flight, the flight crew should communicate with the senior crew member if turbulence is expected or encountered. The senior crew member should communicate this information to the other cabin attendants. Cabin attendants should then prepare the cabin according to the level of the turbulence anticipated.

Communication must flow two ways. Cabin attendants should not wait for the flight deck to turn on the “Fasten Seat Belt” sign. If conditions dictate, the cabin crew should make a PA instructing passengers to return to their seats and fasten seat belts, then request the flight crew to turn on the “Fasten Seat belt” sign.

Note: *If a reasonable amount of time has elapsed with no turbulence, and the “Fasten Seat Belt” sign remains on, the senior crew member should initiate contact with the flight crew via the inter-phone in order to determine if it is safe to resume normal duties.*

8.3.8.6.5 Categories Of Turbulence

HKEA has adopted the Flight Safety Foundation's categorization of turbulence levels. These are Light, Moderate and Severe.

The levels of turbulence expected / experienced will determine the level of service provided by the cabin crew members. Refer to Table 8-22 below.

8.3.8.6.6 Categorization Of Service

The cabin service has been categorized in three (3) levels as follows:

- Level 1: Service continues with caution, while monitoring the severity;
- Level 2: Service continues with caution. Hot drinks are removed and trolleys secured;
- Level 3: Service is ceased. Cabin / Galley secured. Cabin crew seated.

Service levels shall be applied as follows:

Table 8-22: Categories Of Service

Turbulence Category	Service Level
Light	Level 1 or 2
Moderate or Greater	Level 3

8.3.8.6.6.1 Turbulence Levels

Light Turbulence			
Aircraft Reaction	Conditions inside the aircraft	Flight Deck Crew Duties	Cabin Crew Duties
Slight, erratic changes in altitude and/or attitude (pitch, roll, yaw)	• Liquids are shaking but not splashing out of cups; • Carts can be maneuvered with little difficulty; • Passengers may feel a light strain against seatbelts.	• Seatbelts Sign on if required. • If the seatbelts sign is on, Flight Deck crew shall return to the cockpit, or remain seated with seatbelt fastened.	If Seatbelts Sign is not switched on: • Service may continue. Stow carts and galley equipment that are not in used. If Seatbelts Sign is switched on: • The service can continue with the exceptions of hot liquids. • Senior Purser to do a PA to suspend the use of the toilet and hot beverages. • Cabin crew visually checks that passengers are seated with seatbelt fastened and cabin baggage stowed; • Infants must be secured and restrained on guardian's lap or in an approved car type child seat; • Cabin crew confirm "cabin secured" to Senior Purser; • Recheck for longer period of turbulence. • Ensure carts and galley equipment not in use is properly secured. • If the turbulence gets to a level where the Senior Purser believes the Cabin Crew should be seated, they shall make an announcement to that effect.

Moderate Turbulence			
Aircraft Reaction	Conditions inside the aircraft	Flight Deck Crew Duties	Cabin Crew Duties
Changes in altitude and/or attitude occur but with more intensity than light turbulence. Aircraft remains in control at all times.	• Liquids are splashing out of cups; • Difficulties to walk or stand without balancing or holding on to something; • Carts are difficult to maneuver; • Passengers feel definite strain against seatbelt.	• Seatbelts Sign On • Flight Deck crew return to the cockpit, or remain seated with seatbelt and shoulder harness fastened. • Announce over the PA "Cabin Crew, Be seated for Turbulence" • All loose equipment secured	• If possible, maneuver carts back to galley, at the same time check that passengers are seated with seatbelt fasten and hand baggage stowed or placed under the seat; • Infants secured and restrained on guardian's lap or in a car type child seat; • Cabin crew confirm "cabin secured" to Senior Purser; • Cabin crew takes their seats and fit full harness; • Senior Purser reports to flight deck. • Ensure carts and galley equipment is properly secured; • For short duration: set brakes on carts and secure items from top of carts; • For extended duration: carts must be stowed in galley. If not possible to maneuver back to the galley, set the brakes on all carts at present location. Wedge between seats; • Place hot liquids, water jugs/pots in the carts. If not possible, place them on the floor; Take the nearest available seat, fit full harness or fasten seatbelt (if passenger seat).

Severe Turbulence			
Aircraft Reaction	Conditions inside the aircraft	Flight Deck Crew Duties	Cabin Crew Duties
Large, abrupt changes in altitude and/or attitude. Usually causes large variations in airspeed.	• Items are falling over, unsecured objects are tossed about; • Walking is impossible; • Passengers are forced violently against seatbelts.	• Seatbelts Sign On • Flight Deck crew return to the cockpit, or remain seated with seatbelt and shoulder harness fastened. • Announce over the PA "All Passenger and Cabin Crew, Be seated for Turbulence" • All loose equipment secured • Refer to the FCOM for Severe Turbulence	• Cabin crew will not attempt to ensure passenger compliance. It is imperative that cabin crew sit down immediately; • Cabin crew take the nearest available seat, fit full harness or fasten seatbelt (if passenger seat). • Set the brakes on all carts at present location. Wedge between seats; • Place hot liquids, water jugs/pots in the carts. If not possible, place them on the floor; • Note: Hold on to cart if possible, ask adjacent seated passenger to assist in holding cart down.

8.3.8.6.7 Communication And Coordination

To ensure effective flight deck and cabin communications during turbulence, the cabin crew should:

- Discuss turbulence procedures in pre-flight briefing;
- The Commander should brief the cabin crew prior to encountering turbulence;
- When “Fasten Seat Belt” sign is illuminated, or about to be illuminated, the flight crew and cabin crew should communicate as soon as possible;
- Make the appropriate PA when “Fasten Seat Belt” sign is illuminated;
- Make periodic announcements if the “Fasten Seat Belt” sign remains illuminated for prolonged periods or passengers do not comply with the “Fasten Seat Belt” sign.

Note: *If turbulence persists through descent and the “Prepared for Landing” announcement is made, the flight crew should also direct cabin crew to remain seated. The cabin crew should immediately advise the flight crew if the cabin and galley are not secured for landing.*

When the “Fasten Seat Belt” sign is turned off, either the Commander or a cabin crew should make a PA for the passengers to keep their set belts fastened while seated.

Turbulence injury prevention takes a combination of teamwork and personal responsibility. The important responsibility for preventing turbulence injuries will continue to rest with each individual crew member. Flight crew and cabin crew should keep each other informed of conditions and take appropriate actions to avoid injuries.

8.3.8.6.8 In Flight Procedures

Preface

The flight crew must use weather reports and charts to determine the location and altitude of Possible CBs, storms, and Clear Air Turbulence (CAT). If turbulence is expected, the flight crew must turn on the seat belt signs, in order to prepare passengers and prevent injury.

Take-off

For takeoff in high turbulence, the flight crew must wait for the target speed +20 kt (limited to VFE-5) before retracting the slats/flaps (e.g. the flight crew must wait for F+20 kt before setting Flaps 1).

In Flight

Use Of Radar

Areas of known turbulence, associated with CBs, must be avoided. Good management of the radar tilt is essential, in order to accurately assess and evaluate the vertical development of CBs. Usually, the gain should be left in AUTO. However, selective use of manual gain may help to assess the general weather conditions. Manual gain is particularly useful, when operating in heavy rain, if the radar picture is saturated. In this case, reduced gain will help the flight crew to identify the areas of heaviest rainfall that are usually associated with active CB cells. After using manual gain, it should be reset to AUTO, in order to recover optimum radar sensitivity. A weak echo should not be a reason for the flight crew to underestimate a CB, because only the wet parts of the CB are detected. The decision to avoid a CB must be taken as early as possible, and lateral avoidance should, ideally, be at 20 nm upwind.

Refer Chapter 8.3.8.3 Use of weather radar

Use Of AP And A/THR

If moderate turbulence is encountered, the flight crew should set the AP and A/THR to ON with managed speed.

If severe turbulence is encountered, the flight crew should keep the AP engaged. Thrust levers should be set to turbulence N1 (Refer to QRH), and the A/THR should then be disconnected.

Use of the A/THR is, however, recommended during approach, in order to benefit from the GS mini.

If the aircraft is flown manually, the flight crew should be aware of the fact that flight control laws are designed to cope with turbulence. Therefore, they should avoid the temptation to fight turbulence, and should not over-control the sidestick.

VMO / MMO Exceedance

In turbulence, during climb, cruise or descent, the aircraft may slightly exceed VMO/MMO with the autopilot (AP) engaged.

To prevent such an exceedance:

- Adapt speed or Mach target
- Before the descent in DES mode, enter the wind data to improve the computation of the vertical profile and of the speed target range performed by the FMGS
- If severe turbulence is known or forecasted, consider the use of turbulence speed.

If the current speed is close to the VMO (maximum operating speed), monitor the speed trend symbol on the PFD.

If the speed trend reaches, or slightly exceeds, the speed limit:

- Use the speed brakes
- Use the FCU immediately to select a lower speed target.

If the speed trend significantly exceeds the VMO red band, without high speed protection activation:

- Select a lower target speed on the FCU and, if the aircraft continues to accelerate, consider the AP disconnection. When the AP is off, the flight crew should be aware of the pitch influence if the speed brakes are used close to the ceiling.
- Before re-engaging the AP, adapt the pitch attitude to ensure a proper follow up of the speed target.

If the aircraft accelerates above VMO with the AP engaged, the AP will disengage on reaching the high speed protection. The high speed protection will apply a nose-up order up to 1.75 g, in addition to pilot input during VMO recovery. Therefore, make a smooth pitch correction in order to recover proper speed.

High Speed Protection may also result in activation of the angle of attack protection. Depending on the ELAC standard, the crew may have to push on the stick to get out of this protection law. In all events, check the AP engagement status, and re-engage it when appropriate. It may have tripped and the associated aural warning may have been superseded by the over speed aural warning.

Considerations On CAT

Clear Air Turbulence (CAT) can be expected by referring to weather charts and pilot reports. However, the radar cannot detect CAT, because it is “dry turbulence”.

If CAT is encountered, the flight crew may consider avoiding it vertically, keeping in mind that the buffet margin reduces as the altitude increases.

Miscellaneous

- The flight crew must put the shoulder harness on, check that the seat belts signs are on and use all white lights in thunderstorms.
- Turbulence speeds are indicated in the QRH.
- It is not necessary to set the ENG MODE selector to IGN. In the case of an engine flameout, the igniters will trigger automatically.

8.3.8.7 Windshear

Background Information

Winshear Phenomenon

The windshear is mostly due to cool shaft of air, like a cylinder between 0.5 nm and 1.5 nm width that is moving downward. When the air encounters the ground:

- Mushrooms horizontally, causing horizontal wind gradient
- Curls inward at the edges, causing vertical air mass movement.

Flight safety is affected, because:

- Horizontal wind gradient significantly affects lift, causing the aircraft to descend or to reach very high AOA.
- Vertical air mass movement severely affect the aircraft flight path.

Awareness And Avoidance

Awareness of the weather conditions that cause windshear will reduce the risk of an encounter. Studying meteorological reports and listening to tower reports will help the flight crew to assess the weather conditions that are to be expected during takeoff or landing.

If a windshear encounter is likely, the takeoff or landing should be delayed until the conditions improve, e.g. until a thunderstorm has moved away from the airport.

Strategy To Cope With Windshear

The windshear and microburst are hazardous phenomena for an aircraft at takeoff or landing.

The strategy to cope with windshear is:

- Increasing flight crew awareness through the Predictive Windshear System (if available)
- Informing the flight crew of unexpected air mass variations through FPV and approach speed variations
- Warning the flight crew of significant loss of energy through “SPEED, SPEED, SPEED” and “WINDSHEAR” aural warnings (if available).
- Providing effective tools to escape the shear through ALPHA FLOOR protection, SRS pitch order, high AOA protection and Ground Speed mini protection.

Increasing Flight Crew Awareness (If Available)

When the air shaft of a microburst reaches the ground, it mushrooms outward carrying with it a large number of falling rain droplets. The radar can measure speed variations of the droplets, and as a result, assess wind variations. This predictive capability to assess wind variations is performed by the Predictive Windshear System (PWS). The PWS operates automatically below 2 300 ft AGL, regardless of whether the radar is turned on or off. OFF.

Informing Flight Crew

The FPV associated with the approach speed variations (GS mini protection) is an effective means for informing the flight crew of unexpected air mass variations:

Approach speed variations and lateral FPV displacement reflect horizontal wind gradient. Vertical FPV displacement reflects the vertical air mass movement. Refer to FCOM Ground Speed MINI function Principle (GS mini)

Warning The Flight Crew

The “SPEED, SPEED, SPEED” low energy warning is based on the aircraft speed, acceleration and flight path angle. This warning attracts the PF eyes to the speed scale, and request rapid thrust adjustment. In windshear conditions, it is the first warning to appear, before the activation of the alpha floor. The following table provides some typical values of the speed at which the warning could occur in two different circumstances.

Deceleration	Rate Flight	Path Angle Warning
-1 kt/second	-3 °	VLS -7 kt
-1 kt/second	-4 °	VLS -1 kt

In addition, the aircraft has a reactive windshear warning system. This system triggers if the aircraft encounters windshear. In such a case, there is a visual “Windshear” red message displayed on both PFDs for a minimum 15 s, and an aural synthetic voice announcing “WINDSHEAR” 3 times.

Providing effective tools

There are three efficient tools to assist the flight crew to escape:

- The alpha floor protection
- the SRS AP/FD pitch law
- The high angle of attack protection

When the alpha floor protection is triggered, the A/THR triggers TOGA on all engines. The FMA displays A FLOOR, that changes to TOGA LK, when the aircraft angle-of-attack has decreased. TOGA/LK can only be deselected by turning the A/THR off.

The SRS pitch mode ensures the best aircraft climb performance. Therefore, the procedure requests following the SRS pitch bar and possibly full aft stick, in order to follow the SRS orders and minimize the loss of height.

The high angle-of-attack protection enables the PF to safely pull full aft stick, if needed, in order to follow the SRS pitch order, or to rapidly counteract a down movement. This provides maximum lift and minimum drag, by automatically retracting the speed brakes, if they are extended.

8.3.8.7.1 Windshear On Take-Off

If there are reports of serious windshear, take-off should be delayed. If after take-off the presence of shear is indicated by rapidly fluctuating airspeed and / or rate of climb /descent, or on receipt of a windshear warning, apply maximum thrust and aim to achieve maximum lift and maximum distance from the ground without changing aircraft configuration until safety is assured. Advise ATC as soon as possible.

Operational Recommendations

Take-Off

Predictive windshear (“WINDSHEAR AHEAD” aural warning), if available

If predictive windshear aural warning is generated on the runway before take-off, take-off must be delayed.

If a predictive windshear aural warning is generated during the takeoff roll, the Captain must reject the takeoff (the aural warning is inhibited at speeds greater than 100 kt).

If the predictive windshear aural warning is generated during initial climb, the flight crew must:

- Set TOGA
- Closely monitor the speed and the speed trend
- Ensure that the flight path does not include areas with suspected shear
- Not change the aircraft configuration, until the aircraft is out of windshear.

Reactive windshear (WINSHEAR, WINSHEAR, WINSHEAR aural warning) or windshear detected by pilot observation

If the windshear starts before V1 with significant speed and speed trend variations and the captain decides that there is sufficient runway to stop the airplane, the captain must initiate a rejected take-off.

If the windshear starts after V1, the crew will set TOGA and will apply the QRH checklist actions from memory. The following points should be stressed:

- The configuration should not be changed until definitely out of the shear, because operating the landing gear doors causes additional drag.
- The PF must fly SRS pitch orders rapidly and smoothly, but not aggressively, and must consider the use of full back stick, if necessary, to minimize height loss.

- The PM should call wind variation from the ND and V/S and, when clear of the shear, report the encounter to ATC.

8.3.8.7.2 Windshear On Approach

If there are reports of serious windshear, consider holding or diverting. If conditions are such that windshear might be encountered the Commander should brief that a go-around may be required. If windshear is experienced on final approach a go-around should be carried out if the approach profile and airspeed cannot be re-established.

Operational Recommendations

Predictive windshear (if available)

In case the "MONITOR RADAR DISPLAY" is displayed or the ADVISORY ICON appears, the flight crew should either delay the approach or divert to another airport. However, if the approach is continued, the flight crew should consider the following:

- The weather severity must be assessed with the radar display.
- A more appropriate runway must be considered.
- A Conf 3 landing should be considered.
- The flight crew should increase VAPP displayed on MCDU PERF APP page up to a maximum VLS +15 kt.
- Using the TRK/FPA or ILS, for an earlier detection of vertical path deviation should be Considered
- In very difficult weather conditions, the A/THR response time may not be sufficient to manage the instantaneous loss of airspeed. Refer to NO-110 FINAL APPROACH for the applicable technique description.
- In case the "GO AROUND WINDSHEAR AHEAD" message is triggered, the PF must set TOGA for go-around. The aircraft configuration can be changed, provided that the windshear is not entered. Full back stick should be applied, if required, to follow the SRS or minimize loss of height.

Reactive Windshear (If Available)

In case of the "WINDSHEAR WINDSHEAR WINDSHEAR" aural warning, the PF must set TOGA for go-around. However, the configuration (slats/flaps, gear) must not be changed until out of the shear. The flight crew must closely monitor the flight path and speed.

8.3.8.7.3 Windshear Recurrent Training

All pilots will undergo recurrent training in order to ensure continued knowledge and proficiency in the application of windshear avoidance and recovery techniques. Windshear training will be included in both the recurrent ground and full flight simulator syllabi.

8.3.8.8 Microburst

If there are microburst reports for the approach or departure track, pilots are prohibited to continue the approach or take-off.

8.3.8.9 Jet Streams

Near the tropopause there can be narrow bands of wind with extremely high speeds, up to 300 kts, called Jet streams. The extent in length can be up to several thousand miles, the width can be several miles. The main direction is south-west to north.

In mid-latitudes there is a common area for clear air turbulence (CAT) around the jet- stream, above the jet core and to the polar side. Taking a cross section of a jet stream looking downwind, the turbulence region would be to the left of the core in the Northern Hemisphere and to the right in the Southern Hemisphere.

To avoid or leave the area of CAT the following procedures should be applied:

- Reduce speed, to reduce acceleration due to wind shears;
- When flying parallel with the jet stream change altitude by up to 1000 ft;
- When flying perpendicular to the jet stream, change altitude by 1000 ft from the warm side to the cold side downwards, from the cold side to the warm side upwards;
- If the temperature is changing in the CAT area the flight should be continued on course; the CAT area is likely to be crossed in a short time;
- If the temperature remains constant the course should be altered in order to leave the CAT area.

8.3.8.10 Volcanic Ash Clouds

The possible presence of volcanic ash is usually well documented in pre-flight briefing material. The atmospheric repercussions of volcanic activity can be particularly hazardous to aircraft. Flight through volcanic ash can cause extreme abrasion to all forward facing parts of the aircraft, to the extent that visibility through the windshields may be totally impaired, and aerofoil and control surface leading edges may be severely damaged.

8.3.8.10.1 Symptoms

The following symptoms have been observed:

- Smoke or dust in the flight deck, accompanied by an acrid odour (electrical sparks);
- At night, St Elmo's fire and static discharges around the windscreen and engines;
- Fluctuating airspeed indicating pitot tube contamination;
- Multiple engine malfunctions including compressor stalls, increasing EGTs and flameouts;
- Pressurisation and electrical systems may be affected.

The NOTAM / SIGMET systems now deal with known areas of volcanic activity where ash may be present in the atmosphere. Flight into such known areas is to be avoided, particularly at night or in daytime IMC conditions when ash clouds may not be seen.

Reported instances of flight into such activity indicate that the weather radar will not pick up any returns, so the only avoidance methods are by NOTAM / SIGMET or visual contact. In the event of inadvertent penetration of an ash cloud, that may extend for several hundreds of miles, exit as quickly as possible.

Note: *Ground Operations review A320 FCTM ADVERSE WEATHER section "Volcanic Ash".*

8.3.8.10.2 Volcanic Ash In Flight

The flight crew must avoid flying into areas of know volcanic ash. If a volcanic eruption is reported, while the aircraft is in flight, the flight must be rerouted to remain clear of the affected area. The volcanic dust may spread over several hundred miles. Whenever possible, the flight crew should stay on the upwind side of the volcano.

Depending on outside conditions (night flight, clouds), volcanic dust might not be visible.

If an ash cloud is encountered, the applicable procedure is described in the QRH. The essential actions to be taken are:

- 180 degree turn if possible. This is the quickest way to escape, because the ash cloud lateral dimension is not know
- Declare an emergency;
- Protecting the engines:
  - Set A/THR to OFF
  - Decrease engines thrust if possible and maximize engine bleed to increase the engine surge margin
  - Start the APU for further engine restart. (If available)
- Protecting the flight crew and passengers:
  - Don the oxygen mask
  - Consider oxygen for the passengers
- Monitoring the flight parameters
  - Monitor the EGT and fuel flow, because an engine part may be eroded
  - Monitor and cross check the IAS because an IAS indication may be corrupted

A diversion to the nearest appropriate airport should be considered.

Landing

The use of reverse should be avoided, unless necessary.

8.3.8.11 Heavy Precipitation

Heavy precipitation in flight can be in the form of rain, snow or hail. It is usually encountered in the vicinity of storm clouds and / or frontal edges. Extremely heavy precipitation has been known to cause jet engines to flame out, therefore under these conditions the engine ignition should be switched on / checked on. In combination with low temperature severe airframe and engine icing can occur, therefore the aircraft anti-icing system should be activated and monitored. The weather radar will be showing strong returns and should be used to select the safest routing through the storm activity.

There is likely to be associated turbulence with the heavy precipitation and so prompt action to secure the cabin must be taken.

Loss of orientation should be guarded against during the change over from instruments to visual flying during the approach, especially in snow showers and blowing snow. In falling snow and blowing snow, landing lights should be used with caution as the reflected light may actually reduce the effective visibility and even cause false impression of drift during flare and roll-out.

On the ground, contaminated runways may influence the performance, crosswind limitations and give a risk of aquaplaning. The respective procedures in the FCOM of the particular aircraft must be followed.

8.3.8.12 Sand Storms

Avoid flying in active sandstorms whenever possible. Considerable damage can be done to an aircraft's windscreen, leading edges and engine compressor blades by the abrasive action of the sand particles

On the ground, aircraft should ideally be kept under cover if dust storms are forecast or in progress. Alternatively, all engine blanks and cockpit covers should be fitted, as well as the blanks and covers for the various system and instrument intakes and probes.

These should be carefully removed before flight to ensure that accumulations of dust are not deposited in the orifices which the covers are designed to protect.

8.3.8.13 Mountain Waves

These form in the lee of mountain when a strong wind is blowing broadside on (within about 30 degrees) to the range. They are usually in the form of standing waves, with several miles between peaks and troughs. They can extend 10 to 20,000 ft above the range and up to 200 -300 miles downwind.

8.3.8.13.1 Recognition Of Wave Activity

Encounter with mountain waves can be recognize by long-term variations in aircraft speed and pitch attitude in level cruise; variations may be large.

8.3.8.13.2 Handling

Altitude can usually be maintained by the autopilot height-lock, but in severe cases it may be necessary to change thrust or select speed brakes if speed alters dangerously. Bear in mind that at cruise height the margin between low and high speed buffet limits can be relatively small.

The effect of mountain waves reduces with increase in height. At normal cruise altitudes, mountain waves are usually free from clear air turbulence, unless associated with jet streams or thunderstorms.

Near the ground in a mountain wave area, however, severe turbulence and windshear may be encountered. This region is known as the “lee wave rotor”, and is caused by flow separation behind the mountain range. Take-off or landing should not be attempted in a strong lee wave rotor, and if severe turbulence is encountered at low level in the lee of a mountain range, the quickest way out is up. If unable to climb, the next best exit is directly away from the range.

8.3.8.14 Significant Temperature Inversion

Strong inversions in pre-cold front situations may be associated with strong low level jet winds immediately above the ground. At night during seasonal weather changes temperature inversions can cause strong jet winds close to the ground. Sea breeze windshear is caused by the differential heating of land and water under conditions of strong solar heating. All ambient temperature variations have an effect on aircraft performance. Inversions will usually affect performance adversely. The significance of this will vary according to aircraft type and operating mass. Examples of inversion effects are:

- large temperature inversions encountered shortly after take-off can seriously degrade an aircraft's climb performance, particularly at high gross weights. Similarly, if the aircraft is operating to a maximum landing weight, limited by go-around climb performance considerations, the required gradient might not be achieved.
- the maximum cruising altitude capability of the aircraft can be significantly reduced if a temperature inversion of even a small magnitude exists in the upper levels. This may prevent an aircraft reaching its preferred cruising altitude. Should an aircraft encounter an area of inversion once in the cruise at limiting altitude its buffet boundary margins may be so eroded that a descent is necessary.
- temperature inversions at lower levels in the atmosphere are frequently associated with deteriorating visibility and can prevent the clearance of fog for prolonged periods.

8.3.9 Wake Turbulence

To cater for wake turbulence the following increased longitudinal separation minima shall be applied to departing aircraft:

- Except as set forth below, 2 minutes between a LIGHT or MEDIUM aircraft taking off behind a HEAVY aircraft or a LIGHT aircraft taking off behind a MEDIUM aircraft when the aircraft are using:
  - the same runway;
  - parallel runways separated by less than 760 m;
  - crossing runways if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300 m (1000 ft.) below.
  - parallel runways separated by 760 m or more, if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300 m (1000 ft.) below.
- 3 minutes between a LIGHT or MEDIUM aircraft when taking off behind a HEAVY aircraft or a LIGHT aircraft when taking off behind a MEDIUM aircraft from;
  - an intermediate part of the same runway; or
  - an intermediate part of a parallel runway separated by less than 760 m.

8.3.9.1 Wake Turbulence Radar Separation

Unless otherwise prescribed below, the horizontal radar separation minimum shall be 5 NM.

The radar separation minimum may be reduced, but not below 3NM. This may be operated at individual locations by the appropriate ATS authority when radar equipment capabilities, rapid and reliable communication facilities and radar controller experience allow.

When radar position symbols are used, the radar separation minimum shall be that prescribed by the appropriate ATS authority according to the capability of the particular system to accurately identify the aircraft position in relation to the centre of a radar position symbol.

The following wake turbulence radar separation apply:

Minimum Distance	Leading Aircraft	Following Aircraft
6.0 nm	Super	Heavy
7.0 nm		Medium
8.0 nm		Light
4.0 nm	Heavy	Heavy
5.0 nm		Medium
6.0 nm		Light
3.0 nm	Medium	Heavy
3.0 nm		Medium
5.0 nm		Light
3.0 nm	Light	Heavy
3.0 nm		Medium
3.0 nm		Light

The above wake turbulence radar separation shall be applied when:

- an aircraft is operating directly behind another aircraft at the same altitude; or
- less than 1000 ft below; or
- both aircraft are using the same runway, or parallel runways separated by less than 760 m; or
- one aircraft is crossing behind another aircraft at the same altitude or less than 1000 ft below

8.3.10 Crew Members At Their Stations

8.3.10.1 Flight Crew

Each required flight crew member shall be at his station when anticipating /

copying a pre-flight or in-flight ATC clearance; and during take-off and landing.

Flight crew must not make cockpit crew seat change below 10,000 ft AAL.

During flight, when a pilot transfers control of the aircraft or leaves the flight deck a minimum of one pilot must:

- Maintain undivided attention to the flight environment, with full alertness and situation awareness.

- Maintain unobstructed access to the flight control, i.e there shall be no items such as meal trays, manuals that will prevent the pilot from having full control of aircraft from his seat position.

8.3.10.1.1 Sterile Cockpit Policy

Flight Crew shall avoid any conversation not directly related to the safe operation of the aircraft and listening to any frequency not required for current operations from commencement of push back to 10,000 ft AAL on departure, and from 10,000 ft AAL to engine shutdown on arrival.

In addition, communication between Flight and Cabin Crew should be limited to the essential tasks.

The intention is that both pilots are giving full attention to the control of the aircraft and to live ATC frequency. Adherence to this policy facilitates effective crew communications as well as communication of emergency or safety information by Cabin Crew.

Communication with handling agent and/or maintenance, or taking of weather info should be avoided during the sterile cockpit period.

Note: No unnecessary paperwork shall be accomplished during sterile cockpit operations.

8.3.10.1.2 Use Of Headphones

Use of headphones (headsets and boom microphones) for ATC communication is mandatory from engine start to 15,000 ft and from top of descent until engine shut down.

8.3.10.2 Cabin Crew

Each cabin attendant shall be in his/her assigned seats, during takeoff and landing, and whenever it is deemed necessary by the Commander in the interest of safety.

Walking or standing in the cabin is permitted only:

- for safety checks in the cabin;
- for announcements and demonstrations to the passengers;
- for other valid operational reasons, with the approval of the Commander.

8.3.10.3 Deadheading (Positioning) Crews

Deadheading crews should preferably be seated at or near the emergency exits.

8.3.11 Use Of Safety Belts For Crew And Passengers

8.3.11.1 Flight Crew

Flight crew members occupying a pilot's seat must keep their safety harness fastened during taxi, takeoff and landing. The shoulder straps may be unfastened during climb and cruise when no turbulence is expected.

Other flight crew member to keep their safety harness fastened during takeoff and landing unless the shoulder straps interfere with the performance of duties, in which case the shoulder straps may be unfastened but the seat belt should remain fasten.

During all other phases of flight, each required flight crew member shall remain at his station unless his absence is necessary for the performance of duties in connection with the operation, or for physiological needs; provided at least one assigned pilot remains at the controls of the aircraft, at all times. Use of shoulder harnesses is recommended when only one pilot is at the controls.

8.3.11.2 Cabin Crew

During taxiing, take-off and landing, the cabin crew should be seated with their seat belt and harness fastened.

After take-off, the cabin crew may unfasten their seat belt and harness after the seat belt signs have been switched off. However, approval may be given by the Commander via Interphone to unfasten seat belt and harness at any time.

8.3.11.3 Passengers

All seats are equipped with adjustable seat belts. Extension seat belts and Child Restraint Devices are also carried on board.

The seat belt signs are operated by the Commander to indicate the fastening of seat belts. Cabin Crews must be alert at all times for this signal to see that instructions are observed and make a further PA announcement to this effect.

Seat belt and no smoking regulations must be observed and enforced in flight when the signs are switched on. If a passenger refuses to fasten his / her seat belt, this must be reported to the Senior Cabin Crew member who then will advise the Commander.

8.3.11.4 Fasten Seat Belts - No Smoking Signs

The “Fasten Seat Belt - No Smoking” signs are to be illuminated:

- Prior to engine start or push-back or whenever the engines are running whilst on the ground.
- During take-off and initial climb: “Fasten Seat Belts” signs are to remain switched ON after take-off until there is no significant risk of turbulence, and, in any case, until a minimum of 10,000 ft. If conditions are suitable for the cabin crew to commence their service before this time, they may be released to move around the cabin by recycling the “Fasten Seat Belt” sign momentarily to OFF then ON again.
- During descent, final approach and landing: During the descent, anticipation of entering some types of cloud, other than stratus, may make it prudent to switch on “Fasten Seat Belts” signs.
- The “Fasten Seat Belts” sign is to be switched on descending through 15,000 ft so as to give adequate warning to the cabin crew to ensure passengers are strapped in and the aircraft is prepared for landing, followed by a PA by the cockpit crew “Cabin Crews, please prepare the Cabin for landing”. Should the “Fasten Seat Belt” sign have been switched on earlier due to turbulence, then the cabin crew should be alerted by recycling the “Fasten Seat Belt” sign momentarily to OFF then ON again.

8.3.11.4.1 Use Of Seat Belt

The Commander of the aircraft shall before it takes off and before it lands, and whenever by reason of turbulent air or any emergency occurring during the flight he considers the precaution necessary, take reasonable steps to ensure that all passengers are seated with their seat belts securely fastened.

8.3.11.4.2 Prior To Take-Off And Landing

All passengers must remain seated with their seat belts fastened until the "Fasten Seat Belt" signs have been switched off. Cabin Crew are to return to their seats for take-off and landing after checking that all passengers are seated with their seat belts fastened. They are to remain seated until the "Fasten Seat Belt" signs have been switched off, unless otherwise advised by the Commander.

When a baby is being held, the child restraint device shall be used. Under no circumstances should the seat belt be fastened around both the child and the adult as a sudden deceleration of the aircraft could throw the adult forward with the possibility of crushing the child between the adult and the belt.

Infants must be removed from baby bassinets and held by the adult or secured in safety seats during take off, landing and turbulence.

8.3.11.4.3 Turbulent Air

The Commander will turn the "Fasten Seat Belt" sign on during turbulent air and seat belts shall be fastened as soon as possible. Cabin Crew must do an immediate announcement and seat belt check. All hot beverage services will be discontinued immediately. Commanders are to give as much advanced notice as possible when approaching areas of probable turbulence. If severe turbulence is anticipated or the intensity becomes severe, the Commander will then make a P.A announcement to advise the cabin crew to sit down and fasten their seat belts. Caution must be taken with regards to galley equipment / service trolleys which must also be safely stowed before the cabin crew have taken their seats.

Babies are not to be left in baby bassinets during turbulence but must be secured in safety seats or held by parents with the use of child restraint device.

8.3.12 Admission To Flight Deck

No person other than the flight crew members assigned to a flight shall have admission to, or be carried in the cockpit, except as described in this section of the manual.

Members of the HKCAD responsible for certification, licensing and for the inspection of flight operations, when necessitated by the performance of their official duties, shall be admitted to the cockpit. Authorized HKCAD personnel, upon demand, shall be assigned a seat in the cockpit not occupied by a member of the minimum crew on duty, regardless of whether a seat is available in the cabin or not.

The Commander shall ensure that, in the interest of safety, admission to the cockpit does not cause distraction and / or interfere with the flight's operation.

The final decision regarding the admission to the cockpit shall be the responsibility of the Commander.

Authorized Personnel -The following personnel will normally be given free and uninterrupted access to the cockpit:

- Designated operations inspectors of the HKCAD who are in possession of the formal identification document issued by the HKCAD.

- Flight crew who are employed or appointed by the Company and have been designated to act as checking or training personnel for the particular flight.
- Designated cabin attendants assigned to flight deck safety duties;
- Persons authorized to use vacant crew seats as per Chapter 8.3.12.
- Personnel authorized in accordance with this section of this manual are permitted access to the cockpit and may occupy observer's seat(s) for take-off and landing.

The Commander may refuse to allow the above personnel to enter or remain in the cockpit, in his opinion; the safety of the aircraft would thereby be endangered. If the Commander denies access or requests one of the above personnel to leave the cockpit he must make a full written report detailing the circumstances of the incident. In the case of a HKCAD Inspector the report must be forwarded to the HKCAD within 24 hours by the fastest available means.

Access of any authorized person not wearing full company uniform to the cockpit shall take place in a discreet manner.

- Upon boarding they shall identify themselves to the cabin crew and then standby at the main door without obstructing other passengers; Under no circumstances shall they proceed to the main cabin.
- After passenger boarding is completed and after view screens (e.g. curtains) are in place they shall enter the cockpit without being in view of any other passengers.
- If they need to leave the cockpit in flight this shall be for short periods only and confirmed to the area immediately behind the cockpit. Under no circumstances shall they proceed to the main cabin.
- Between leaving and entering the cockpit view screens shall be in place and the area must be cleared and kept clear of passengers by the cabin crew.
- Upon arrival they shall remain in the cockpit until all other passengers have disembarked.

8.3.12.1 Briefing The Occupants Of Crew Jump Seats

The occupation of a vacant flight crew seat requires certain instructions to the occupant regarding the following items:

- Handling of seat and seat harness;
- Evacuation possibilities;
- Position, handling and time of use of the oxygen masks;
- Position and use of the life vests (if required);
- Behaviour in emergency cases;
- Not to touch any controls, switches, instruments or circuit breakers.

Note: *The crew must inform the respective personnel that his transport on a vacant crew seat is an exception and will entail restrictions regarding sitting comfort, service and the consumption of alcohol.*

8.3.12.2 Flight Deck Door Policy

The flight deck door shall be closed and locked from the time all external doors are closed following embarkation, until any such door is opened for disembarkation, except when necessary to permit access and egress by authorized persons.

Flight crew must use the cockpit surveillance camera system to identify persons requesting entry to the flight deck and to detect any suspicious behaviour or potential threat.

Note: *Refer to MEL for procedures to be used in the case of flight deck door lock and cockpit surveillance camera system unserviceable.*

8.3.12.3 Visits To The Flight Deck

No visits to the flight deck by the general public are permitted.

8.3.13 Use of Vacant Crew Seats

The Commander alone decides on the assignment of any vacant crew seat to supernumerary (SNY) crew members or Authorized Persons Chapter 8.3.12.1. The jump seat may not be sold for commercial gain.

8.3.13.1 Flight Deck Jump Seats

The Commander of an aircraft has discretion to permit the use of the flight deck (first observer) jump seat only to certain authorized persons and subject to the following conditions:

- If there is a passenger seat available, then the jump seat should not be occupied
- No training or check is being conducted during flight;
- No person under the age of 12 years may have access to the flight deck or use the jump seat;
- Personnel occupying the flight deck jump seat must be briefed on all emergency procedures; a Jump Seat Occupant Briefing Card is available and shall be used for this purpose.

Authorized Persons - Only the following persons traveling as passengers (not on GD and not in uniform) may be permitted use of the flight deck jump seat:

- Designated operations inspectors of the HKCAD who are in possession of the formal identification documents issued by the HKCAD as per Chapter 8.3.12.
- Any other company personnel as authorized by DO or GM-F.

8.3.13.2 Cabin Crew Jump Seats

In consultation with the Senior Cabin Crew member, the Commander may authorize available cabin crew jump seats to be used by HKEA personnel with current Safety and Emergency Procedures (SEP) training on the aircraft type (e.g. pilots, cabin crew and instructors).

8.3.14 Incapacitation Of Crew Members

8.3.14.1 Types Of Incapacitation

Obvious incapacitation means total functional failure and loss of capabilities. It will generally be easily detectable and of prolonged occurrence.

Subtle incapacitation is the most frequent type and is considered a more significant operational hazard, because it is difficult to detect and the effects can range from partial loss of function to complete unconsciousness. Since a flight crew member may not be aware of or capable of rationally evaluating his situation, this type of incapacitation is the more dangerous one.

8.3.14.2 Actions To Deal With Incapacitation

While it is impossible to legislate for all possible incapacitation scenarios the following guidelines should be considered:

- The senior cabin crew member should advise the Commander if any cabin attendant feels unwell whilst on duty. The senior cabin crew member should keep the Commander informed of any subsequent change in the condition of the crew member.
- The Commander should be aware of the possibility that incapacitation due to food poisoning from a common cause could lead to further crew incapacitation.
- In the event of injury or illness occurring to any crew member in flight, the Commander should consider whether to land at the nearest suitable airport where adequate medical facilities are available. In these circumstances, normal route and airport experience requirements need not necessarily apply.
- The Commander and the senior cabin crew member should seek medical advice, either onboard the aircraft, or otherwise from ground sources where time and communications so allow.
- If crew incapacitation leads to effective crew numbers (flight or cabin crew) falling below the minimum specified, the Commander should declare an emergency. (If operate as single pilot)
- A partially incapacitated crew member should not be allowed to participate in the subsequent operation of the aircraft if there is any possibility that judgement may be impaired.

8.3.14.3 Pilot Incapacitation

In case of incapacitation of a pilot, the remaining pilot will request a member of the cabin crew to report to the flight deck immediately using the PA, or the Emergency Call System. The Senior Cabin Crew member or other Cabin crew must proceed to the cockpit immediately. The Cabin Crew will:

- fasten the seat belt and shoulder harness for the incapacitated pilot;
- place the pilot's hands on his chest underneath the shoulder harness;
- push the seat completely aft by using the horizontal adjustment control;
- recline the seat back by the tilting backrest control;
- tighten and manually lock the shoulder harness.

The Cabin Crew should consult the other pilot and use their judgment to decide whether the incapacitated pilot should be put on oxygen. If oxygen is required, oxygen masks can be found in a stowage cabinet outboard of the crew seat. To use the oxygen:

- Lift up the oxygen stowage cover, press the red 100% oxygen selector, squeeze the red clip and pull mask out. Place mask over face and release red clips. The harness deflates and maintains.

It takes two people to remove the dead weight of an unconscious body from a seat without endangering any controls and switches. If it is not possible to remove the body, one cabin attendant shall remain on the flight deck to take care of and observe the incapacitated pilot. A Cabin Crew shall request assistance from any medically qualified passenger and check if a type qualified company pilot is on board to replace the incapacitated pilot. If there is no type qualified company pilot on board, a Cabin Crew is required to remain on the flight deck and assist in reading out the checklist with the pilot flying.

Note: *A Cabin Crew should routinely visit the flight deck at 30 minute intervals to check for pilot incapacitation.*

8.3.15 Cabin Safety Requirements

The passenger seating requirements are set down in the aircraft type specific Operations Manual. For regulations regarding the seating of PRM, children and infants see Chapter 8.2.2 of this Manual.

8.3.15.1 Preparation For Flight

Measures to be taken by the cabin crew:

- Checking the emergency equipment as per FCOM;
- Safety Instruction Cards in all seat backs;
- Checking exits and emergency exits for being “CLOSED” / “LOCKED”;
- Checking stowage of hand luggage and larger luggage pieces / special loading in the cabin;
- Keeping special compartments for emergency equipment free from other objects;
- Observing the seat assignment for handicapped and sick persons, "UM"s as well as infants and accompanying persons;
- Making required announcements and demonstrations, giving instructions;
- Observing dangerous objects as per “Dangerous Goods” regulations (OM-A Chapter 9;
- Ensuring that all curtains are clipped open for take-off and landing;
- Prohibition of smoking;
- Switching off “Galley-electrics”;
- Securing any trolleys, containers, hot jugs, ovens, coffee machines, stowing compartments, hat racks etc;
- Keeping exits, emergency exits and escape paths completely free from obstacles;
- No luggage on seat rows, aisles, at exits and emergency exits;
- No luggage in the cabin passages, between seat rows and in front of the 1st seat row;
- No luggage on seats at the aisle, if wall-side or centre seat is occupied;
- No loose objects, papers, newspapers on the floor or the seats;
- Lavatory compartments free and doors closed
- Ensuring that passengers have correctly fastened their seat belts;
- Folding tables securely stowed;
- Seat backs in upright position;

- At night, adjust galley and cabin lighting intensity to compliment external light intensity and conditions;
- Be aware of smoke, and “extraneous noise and smells”;
- Do not use overhead bins and stowing compartments with defective locks;
- No use of electronic equipment.

8.3.15.2 Cabin Secure Report

Definition

The “Cabin Secure Report” is a report from the cabin crew to the flight crew prior to takeoff and landing or for a prepared forced landing or ditching serving to ensure that the entire cabin is secured against stronger flight movements or acceleration and, in this way, the hazard risk for passengers and crew members is reduced to the minimum.

The “Cabin Secure Report” is given to the Commander by the Senior Cabin Crew Member, selecting the “Cabin Ready” on the FAP

- The Senior Cabin Crew must inform the flight crew immediately of possible delays in cabin secure preparations for take-off or landing.
- Cabin Secure Report Prior Take-Off - Procedure
    - The “Cabin Secure” Report should be given about 3-4 minutes prior to take-off at the latest.;
    - The “Cabin Secure” Report must be given before the PM has made a PA “Cabin Crew Please be seat for take-off”;
    - If the “Cabin Secure” Report is not received in timely manner, the flight crew will request it via the interphone system;
    - The “Cabin Secure” Report shall mean: Emergency equipment checked as per SEPM, and no failures found which would restrict the flight as per MEL;
    - All Cabin Crews are seated;
    - All passengers on board;
    - All flight documents on board;
    - All doors closed and slides armed;
    - Passengers, cabin, lavatories and galley checked as per FCOM, and according to the “Normal Checklist” for cabin attendants;
    - Required demonstrations and announcements made.

8.3.15.3 Cabin Supervision During The Flight

During the flight, the following must be observed and checked:

- Check for “Smoke” in toilet compartments: check the toilet compartment every 30 minutes for possible tampering of the smoke detector, before meal service and every take-off and landing;
- Prior to using them, ovens free from food residues and foreign matter;
- If a passenger spends an extraordinarily long time in the toilet, a complete toilet compartment check must be performed;
- Clogged or overflowing water basins and hand basins;

- If the water at the hand basins is too hot, inform the Commander - entry AML; consider switching off the water heater.
- Flaps of toilet waste bins closed;
- Stow away and secure trolleys not required for service;
- No trolleys to be in front of open cockpit door;
- Do not leave behind unnecessary objects without securing them;
- Smoke, extraneous smells and noise;
- Correct locking of stowage compartments and hat racks;
- Remove newspapers or papers from the floor;
- Compartments with emergency equipment free from luggage, clothes etc;
- Switch off and do not use electronic equipment.

8.3.15.4 Preparation For Landing

Measures to be taken by the cabin crew:

- Switching off “galley-electrics”;
- Securing all galley equipment;
- Keeping exits, emergency exits and escape paths completely free from obstacles;
- Checking stowage of hand luggage and larger luggage pieces / special loading in the cabin;
- No luggage on seat rows, at exits and emergency exits;
- No luggage in the cabin aisle, between seat rows and in front of the first seat row;
- No loose objects, papers, newspapers on the floor or the seats;
- No luggage on seats at the aisle, if wall-side or centre seat occupied;
- Opening curtains and securing them;
- Toilet compartments vacant and doors closed;
- Ensuring that passengers have correctly fastened their seat belts;
- Folding tables securely stowed;
- Seat backs in upright position;
- Observing smoke, “extraneous noise and smells”;
- Bins correctly locked;
- No use of electronic equipment;
- At night, adjust galley and cabin lighting intensity to compliment external light and conditions.

8.3.15.5 Cabin Secure Report Prior To Landing

The “Cabin ready” Report shall mean:

- Passenger, cabin, toilet compartment and galley checked as per FCOM and according to the “Normal Checklist” for cabin crew;
- Necessary announcements made.
- All Cabin Crews seated

8.3.15.6 After Landing

After the aircraft has landed the cabin crew shall ensure that the passengers remain seated with their seat belts fastened until the final parking position has been reached and the engines have been shut down. On reaching the final parking position the cabin attendant shall ensure that the escape slide for emergency evacuation, at the door(s) / emergency exit(s) they have been designated responsible for, are disarmed as prescribed in the FCOM.

8.3.15.7 Smoking On Board

HKEA operates a strict "No Smoking" policy throughout its aircraft, on all revenue and non-revenue flights and in all phases of operation.

8.3.15.8 Use Of Electronic Equipment On Board

8.3.15.8.1 Prohibited Equipment

During take off, climb, descent and landing no electronic device may be used.

During the entire stay on board, passengers, crew or ground staff are not allowed to use the equipment listed below:

- Portable radio transmitters and receivers including so-called "Airbands" and "CB-Radios";
- Portable TV-sets with picture tube;
- Mobile phones.
- Portable radio telephones;
- Portable walkie-talkies;
- CD- and MD-players (including "Discman");
- The CD-ROM drive of a laptop;
- Wireless (PC) mice;
- Printers;
- Laser Pointer;
- Any kind of toys with remote control.

8.3.15.8.2 Non-Prohibited Equipment On Board

No restrictions exist for:

- Walkman;
- Game gear with LCD-display;
- Laptops with LCD / LED-display without printer;
- Pocket calculators;
- Dictating machines;
- Cameras, video cameras and recorders;
- TV-sets with LCD-display;
- Hand-held Gaming Console

Note: *The above equipment is not permitted to be used during take-off and landing, and when the seat belt signs are switched on.*

8.3.15.8.3 Use Of Mobile Telephones By The Flight Crew / Passengers

The flight crew is allowed to use a mobile phone or so-called multi functional mobile phones:

- With engines shut downs;
- If at least one aircraft door is opened;
- Prior to dealing with the "Pre Flight / Before Start Checklist".

Note: *Passengers are ONLY permitted to use mobile phones when the aircraft door is opened, or when aircraft has exited the runway on landing.*

8.3.15.9 Passenger Medical Emergency

During a passenger medical emergency in-flight the cabin crew shall immediately advise the flight crew of the situation.

The cabin crew shall seek medical advice onboard, or ground sources through the flight crew where time, work load and communications so allowed. Through out the flight the cabin crew shall evaluate the severity of the medical emergency and report back to the flight crew as and when necessary.

If necessary the Commander should consider whether to land at the nearest suitable airport where adequate medical facilities are available. In these circumstances, normal route and airport experience requirements need not necessarily apply.

8.3.16 Passenger Briefing Procedures

General Information

Announcements to the passengers must be made via PA, or via pre-recorded announcements in order that they can be recorded on the "Cockpit Voice Recorder".

The announcements are generally made in English, Cantonese and Mandarin languages. If tape announcements are available in another language related to the flight, these shall also be used.

The senior cabin crew member is responsible for ensuring that the announcements are made. Each cabin attendant must regularly update their announcement book.

Upon takeover of an empty aircraft a speaking test and functional check of the PA system is to be conducted. The test announcement must be clearly heard and understood in the entire cabin.

The announcements are an essential part of the communication process between the crew and the passengers. They familiarize the passengers with receiving important and required safety information via the PA. This will be of great value in preparing them to understand and respond to vital instructions should the crew have to prepare them for an emergency situation.

A good announcement should be spoken:

- distinctly, well articulated and with as little dialect as possible;
- slowly and with adequate pauses;
- with appropriate accentuation and intonation;

- in a friendly manner to sound natural, vivid and personal.

The announcements prior to take-off and the demonstrations regarding the use of seat belts, life jackets and oxygen are made by cabin attendant demonstration as follows:

- The senior cabin crew member will read the text in English, Cantonese, and Mandarin;
- The cabin attendants will perform the respective demonstrations according to the FAM.

Passenger Briefing Prior to Take-Off - Passenger briefing prior to take-off must include the following:

- Observing the “No smoking” and “Fasten Seat Belt” signs;
- Prohibition to smoke during the entire flight;
- Bringing the seat backs into an upright position;
- Folding tables securely stowed;
- Number and position of the exits and emergency exits;
- Emergency lighting including the “Floor Strip Lights”;
- Closing and tightening the seat belts;
- Safety instructions in the seat backs;
- Demonstration of the use of oxygen and life vests;
- Recommendation to keep seat belts fastened during the entire flight;
- Disconnecting and not using electronic equipment prohibited on board;
- Existing regulations regarding hand baggages in the cabin;

Note: *The cabin crew should make repeated announcements during boarding on the stowage of hand baggage.*

Passenger Briefing After Takeoff - Passengers are to be reminded to:

- maintain their seat belts fastened while seated;
- observe the smoking regulations.
- The first P.A. after takeoff is delayed until the seat belt signs are switched OFF, unless otherwise instructed by the Commander.

Passenger Briefing Prior to Landing - The passenger briefing prior to landing must include the following:

- Returning to the allocated seat and fastening of seat belts;
- Bringing the seat backs into an upright position;
- Folding tables securely stowed;
- Disconnecting and not using electronic equipment;
- Stowage of hand baggage.

Passenger Briefing After Landing

- The senior cabin crew member shall start the “After Landing P.A.”, only after the aircraft has exited the runway. The passengers must be advised to remain seated with their seat belt fastened until the seat belts signs are switched “OFF”.

8.3.17 Cosmic Or Solar Radiation Detection Procedures

HKEA has a programme managed by Crew Operations Team that records the total dosage of cosmic radiation to which the crew are exposed together with the names of that crew. Where the record indicates that a crew member may achieve exposure of more than 4mSv in any 12 month calendar period, then that crew member will be rostered accordingly to ensure that his annual exposure does not exceed 6mSv.

8.3.18 Automation Policy

Modern advanced automatic systems, such as those fitted in HKEA fleet have contributed to an improvement in Flight Safety. Automatic systems can assist crews by reducing workloads in critical phases of flight and pilots are encouraged to use all available automatic systems when circumstances demand e.g. in bad weather or abnormal situations.

However, there is a danger that pilots can become too dependent on automation and will be unable to operate the aircraft if the automatic flight and navigation systems are degraded. It is HKEA policy that pilots must:

- Maintain manual flying skills through regular practice;
- Remain in command of the automatic systems. Crews must be aware of what the automatic systems are doing during all phases of flight and if the result is not understood or is not what is required they must have the confidence and ability to revert to basic flying modes.

In order to facilitate retention of basic flying skills, pilots must practice departures, approaches and landings without autopilot and / or autothrust in appropriate weather and workload conditions. In addition:

- Commanders are encouraged to allow F/Os to fly approaches with reduced automation if the F/O so requests, and conditions are suitable.

It is Company policy to use the simulator for practicing "non-automated" flying. Manual flying using raw data will be a constituent part of all simulator training.

Some traditional skills have changed in emphasis with the introduction of the latest technology. The FMGS is an essential part of the scan. En-route navigation has become less demanding, but the corollary of this is that the accuracy of the managed navigation must be monitored. Unless automatic monitoring and alerting is available regular checks against raw data must be performed.

Pilots should take into account the workload increase (consequently, monitoring capability decreases), suitable weather (VMC preferred), other traffic, tiredness, experience and any other situation that could affect the safety of the flight. This should be communicated as part of the briefing.

8.3.18.1 FMGS

As a general philosophy HKEA practices the concept of short term / long term navigation in relation to FMGC/MCDU programming. The intent is to have heads up, looking out at low level, high workload environments

Short Term Navigation (low altitudes, below transition) is primarily FCU manipulation with only NAV updates in the FMGC/MCDU e.g. direct too waypoint, and extend centreline's above 5000';

Long Term (Above Transition) all/any entries can be made and confirmed by both crew in the FMGC/MCDU.

The Flight Control Unit (FCU) and FMGS Multifunctional Control Display Unit (MCDU) and keyboard are the prime interfaces for the crew to communicate with aircraft systems (i.e. to arm modes or engage modes and to set targets).

The Primary Flight Display (PFD), particularly the Flight Modes Annunciator (FMA) section and target symbols on speed scale and altitude scale, and Navigation Display are the prime interfaces for the aircraft to communicate with the crew, to confirm the aircraft systems have correctly accepted the flight crew's mode selection and target entries.

Any FCU input should be followed by the corresponding call out from the PF associated with the changes to the data on PFD / ND. PM confirmation is required.

Any MCDU input should be confirmed by cross-checking the corresponding annunciation or data on PFD / ND, and agreed by both pilots before the execution of any change or input of data.

At all times, the PF and the PM should be aware of:

- Modes armed or engaged
- Guidance targets set
- Aircraft response in terms of attitude, speed and trajectory
- Mode transitions or reversions

There are some navdata files (most world wide database such as JEP2, used by HKE) which, due to size limitations, do not contain non essential reporting points as part of the airway description.However, these way points are still contained in the database and can be manually selected (by scratch pad entry) if required.

8.3.19 Prevention Of Runway Incursion

The potential for taxiing, runway incidents and accidents can be reduced through adequate planning, coordination, and communication. To avoid runway incursions the following procedures shall be followed.

8.3.19.1 Planning

Company procedures require the crew to complete a taxi brief for departure and arrival including; push back direction (departure), intended taxi route and expected runway. The taxi brief should include the additional items if applicable.

- The latest NOTAMs concerning construction and / or taxiway / runway closures.
- Any unique or complex inters along the expected taxi route, runway crossings.
- Does the landing runway intersect another runway?
- Does the landing runway have an exit taxiway that will shortly intersect another runway?
- The additional vigilance required during reduced visibility i.e. heavy rain, fog, mist etc.

CAUTION: Potential pitfall of pre-taxi and pre-landing planning is setting expectations and then receiving different instructions from ATC. Flight crew need to ensure that they follow the clearance or instructions that have actually received, and not the one the flight crew expected to receive.

CAUTION: Unless otherwise instructed by ATC, taxi clear of the landing runway even if that requires you to cross or enter a taxiway / ramp area.

8.3.19.2 Situational Awareness:

(1) Both crew members shall have the aerodrome diagram in sight. They need to know the aircraft's precise location on the aerodrome, especially when flight crews are unfamiliar with the aerodrome or in reduced visibility. They shall use all available signs, markings and aircraft lighting to the appropriate level when taxiing.

(2) Instructions from ATC shall be recorded on the scratch pad of the CDU and the PF shall read back the clearance for confirmation. Symbols or shorthand notations, which allow a clear record and later recall of instructions, may be used.

(3) The PF shall make a statement of his intentions when approaching each taxiway inter. E.g. “Approaching Hotel, holding short or clear left, turning right” The PM will cross check the clearance recorded , notify the PF of any errors, and continually update the PF with information of the aircraft's progress on the aerodrome diagram, this is vital during operations in poor visibility, at unfamiliar aerodromes, or at night.

(4) If LVP operations are in force, LVP holding points must be complied with unless clearance beyond is given by ATC, to remain clear of the ILS sensitive area.

(5) PF is to confirm the holding point and RWY prior to turning into the inter, e.g. “Juliet 2, 07R”.PF should read the ICAO runway identification signage (red)

(6) Prior to entering the runway, scan the full length and approach path. Verbal confirmation of “Clear Left” / “Clear right / Aircraft rolling” is required and use of TCAS to identify approaching traffic is recommended.

(7) Where the departure runway is equipped with ILS facilities. When lining up on RWY, on completion of the turn, press P/B LS, both pilots shall silently identify ILS and localizer centered and Heading pointer Yellow within 5 degrees of the RWY heading.

For runways without ILS facilities, runway heading should be used.

(8) In LVP operations, pilots should select the ND display to minimum range, plus use the aircraft’s heading display to assist orientation while taxing.

(9) Modification of the FMS due to a runway change is only permitted when the aircraft is stationary.

(10) Flight crew members should always confirm the aircraft's position with each other and the aircraft should be stopped if there is any confusion on the part of any crew member.

CAUTION: Do not stop on a runway. If possible, taxi off the runway and then initiate communications with ATC to regain orientation.

CAUTION: Never enter a runway without specific authorization. When in doubt, contact ATC.

8.3.19.3 Cross Checks

The flight crew members must cross check and confirm critical actions, such as:

- Aircraft configuration changes (landing gear, wing flaps, speed brakes)
- Altimeter and airspeed (bug) settings, as applicable
- Transfer of control of the aircraft
- Changes to the Automatic Flight System/Flight Management System and radio navigation aids during departure and or approach phases of flight.
- Performance calculations or inputs, including AFS/FMGS entries.

8.3.20 Flight Phase Procedures

8.3.20.1 Introduction

The HK Express Airways' flight phase procedures are in line with Airbus Industries' policies. The information contained clarifies task sharing, highlights company specific procedures and complements FCOM information.

The flight phase procedures commence from the point where the Crew arrives at the ABO (HKG) / aircraft (outstation) until the aircraft is parked and all passengers and Crew disembarked.

It is recommended to consider applying the green operating procedures, available in the FCOM. The one engine taxi, however, is not approved.

The simulation of flight instrument conditions and/or emergency situations that might affect the flight characteristics of the aircraft or otherwise degrade safety standards on HKEA passenger flights is prohibited.

8.3.20.2 Pre-Flight Planning

The received flight documentation will be reviewed in this recommended sequence:

- EZFW sheet: Aircraft call sign, passenger numbers and EZFW
    - To be checked with the OFP
- Aircraft ADD & CADD report for relevant defects
- ATC flight plan
- Notams
- Weather
- OFP
- Fuel requirements

The reason for this sequence of the documentation review is to facilitate the transfer of the relevant information from one crew member to the other, if the other pilot(s) arrives late. Then, a final decision on the fuel amount can be made together.

Note: Any extra fuel needs to be justified with acceptable reasons.

Note: Once cleared to line, briefings to the crew are conducted by the Commander, or as delegated.

8.3.20.3 Preliminary Safety

Crew should not board an aircraft unless it is deemed safe.

Chocks are to be verified in place, and the airbridge or boarding steps verified to be secure prior to boarding.

8.3.20.4 Documentation And Maintenance

On entering the aircraft, the PM will take the PF through the Aircraft Technical Log.

The PM shall check that applicable route manuals, aircraft manuals and documents are on board.

Each pilot shall check that Enroute and Terminal charts for departure, destination and alternates for the planned route are available. This is a general presence check and does not include checking each individual terminal chart.

If refueling has not already started, check fuel figure for a large discrepancy between fuel on arrival and before refueling, which may need to be explained. Once refueling completed, check the uplifts of fuel, oil and hydraulic fluids.

8.3.20.5 Takeoff Performance Calculations

Aircraft performance limited takeoff weight must be assessed in accordance with the Performance Manual to ensure that the takeoff weight is permissible for the ambient and runway conditions at the departure airport.

8.3.20.6 Pre-Flight Security Check

Crew must inspect the flight deck to ensure that there are no suspicious or out of place items.

8.3.20.7 Preliminary Cockpit Preparation

The Preliminary Cockpit Preparation will be performed by referring to the QRH (Read and Do).

All other normal procedures (non-SRS) will be performed by memory.

Unless required for electrical power or passenger comfort, consider delaying APU start (not earlier than 10 min before ETD).

8.3.20.8 Exterior Inspection

A visual inspection of the exterior of the aircraft must be carried out to detect any obvious anomalies or signs of tampering. The exterior inspection ensures that the overall condition of the aircraft and its visible components and equipment are safe for the flight.

Hi-visibility vest shall be worn before proceeding onto the apron area.

8.3.20.9 Cockpit Preparation

8.3.20.9.1 Full / Transit Cockpit Preparation

A Transit Stop must be understood as the turn-around at an airport, performed by the same crew on the same aircraft.

<u>Only in this case</u>, a transit cockpit preparation can be performed.

In all other cases, or when in doubt, a full cockpit preparation must be performed.

During transit stops, it is recommended to perform the FMGS set up prior to the cockpit preparation.

If the OEB's have previously been checked on the initial departure and the crew is familiar with them and no aircraft / crew change have occurred, a full review is not required.

8.3.20.9.2 Flight Deck Principles

- Avoid touching DU's with fingers. Use dry towels to clean them.
- Do not pass containers containing liquids over the pedestal.
- Ensure that all containers containing liquids are secured with a lid during takeoff and landing.
- Do not place manuals on the pedestal. Manuals with metal binders or any other material that could damage the window cannot be placed on the glareshield.

- Use of personal headsets is acceptable. If used, at the end of the flight duty, company headsets shall be connected again and stowed in the proper compartment.
- At the end of the flight, leave the flight deck organized and clean (i.e. headsets, manuals & waste).

8.3.20.9.3 Dual Systems

Where dual systems are installed, such as navigation lights.

- System 1 shall be used on days with odd numbered dates, and
- System 2 shall be used on days with even numbered dates (local time).
- ATC transponder, select System 1 if AP 1 is used, and System 2 if AP 2 is used.

8.3.20.9.4 Display of lights

Beacon (Anti-Collision Light)

Illumination of the beacon is an indication that engines are running, the aircraft is being towed / pushed back, or that the aircraft is moving under its own thrust.

Equally, switching off the beacon is an indication that the engines no longer present a hazard on the aircraft.

Should an aircraft be dispatched with the Beacon unserviceable, the ground crew shall be advised prior to pushback.

Strobe

Where an auto mode is installed, the strobe switch shall be in auto except when entering / crossing a runway, including a non-active runway, where it shall be selected ON.

8.3.20.9.5 Transponder Operation

Flight crew shall accurately operate the transponders as published in the OM-B, with reference to the local SSR Requirements.

Mode S

For ATC needs, the crew shall enter the entire flight number in the FMGS exactly as shown on the ICAO flight plan, without inserting any space. (E.g. HKE274).

8.3.20.10 ATC Clearance

Use of ACARS PDC is recommended where available.

Both pilots must monitor ATC clearance if delivered by voice.

- For Chinese airspace flights, have the meter conversion table readily available for reference before requesting ATC clearance.

The PDC number or the SID & Squawk (Ocean 2A - SQ4242), must be noted on the OFP.Loadsheet

8.3.20.10.1 Load and Trim Sheet verification

The Commander shall verify the:

- Flight number, destination, aircraft registration;
- Date and time of the flight;

- Number and the distribution of crew & passengers;
- Cargo loading which should be in accordance with the cargo manifest;
- Fuel quantities (Takeoff & Trip Fuel) and distribution;
- Fuel imbalance (if any) being within prescribed limits;
- MTOW, MZFW and associated CG;
- Expected landing weight being below MLW;
- Stab trim setting.

The acceptance of the Load and Trim sheet (LTS) is the Commander's responsibility. By doing so, the Commander indicates his acceptance that the Loadsheet is correct, and that the aircraft is loaded within all limitations.

It should be signed as soon as practicable to release the dispatcher.

The PF then reviews the data in the sequence, as per SOP.

8.3.20.10.2 Last minute Change Procedures

Last Minute Change (LMC) means any change concerning dry operating weight (crew and/or catering) or traffic load (passengers, baggage, and cargo) occurring after the issuance of the Load and Trim sheet.

Any LMC must be brought to the attention of the Commander, and documented on the load and trim sheet.

LMC will be hand amended to be documented on all copies of the Loadsheet by either the Commander or the handling agent, and will be entered into the Last Minute Change section.

All amended copies shall be identical.

8.3.20.10.3 Traffic Load

In the case of Last Minute Change, 3 checks must be performed.

(1) The total weight of the LMC must be lower than the underload. The underload is the difference between the maximum allowed payload for that flight and the actual payload. The LMC being lower than the underload ensures that there is no risk of exceeding any aircraft maximum gross weight for that particular flight. This takes into account structural and performance limitations.

(2) The total weight of the LMC must be lower than the LMC tolerance, which depends on the aircraft type.

These tolerances minimize the effect of the LMC on the aircraft balance.

A320 / 321	500 kg

E.g. removing/adding 500kg from the aircraft, or moving 250kg from the forward cargo hold to the rear cargo hold

(3) For LMC consisting of cargo (baggage or freight), it must be checked that compartment and position maximum loads are not exceeded.

If one of the above limits is exceeded
a new Load and Trim Sheet must be issued.

8.3.20.10.4 Fuel

Fuel LMC can be a change on takeoff fuel or on trip fuel.

In case of fuel LMC, the takeoff and landing weights must be updated, taking into account the added or removed fuel quantity.

If the fuel load changes by the limits as specified in LMC, a new loadsheet is not required.

8.3.20.10.5 Traffic Load and Fuel

When both traffic load LMC and fuel LMC are considered, all aircraft maximum weights must be updated.

- The ZFW must be recalculated to include the traffic load LMC, and
- The TOW and LW must be recalculated to include the fuel LMC.

If a takeoff weight increase (due to ZFW and/or Fuel increase) in excess of:

A320 / 321	3,000 kg

is foreseen, then the Commander can ask a new OFP, based on the new takeoff weight.

However, to avoid delay on the flight, and by taking the sector length into account, the Commander may decide to adjust the OFP fuel figures by applying the fuel burn adjustments available on the OFP.

8.3.20.11 Aircraft Technical Logbook

The ATL will be signed by the Commander, after the sector PM has carried out the exterior inspection and all required inspections / certificate of release to service have been entered. PF to initial in action taken to acknowledge "NIL FURTHER".

If a required signature / initial is not specifically labelled "Commander", it may be inserted by the pilot completing the ATL.

The Commander must verify that all required signatures / initials are duly included.

8.3.20.12 Takeoff Data

Once the loadsheet has been checked, both pilots will verify that the actual TOW is lower than the TOW used for the Takeoff Performance calculations.

If the actual TOW is higher than the TOW used for Takeoff Performance calculations, a new calculation shall be made.

If the actual TOW is lower than the TOW used for Takeoff Performance calculations, a new calculation might be required.

Discrepancies must be resolved and accepted by both flight crew members before the data is used.

RTOW charts that were provided to the flight crew for a specific case (E.g. One Brake Inop) will be deleted after the flight. They will not be stored in the Performance Handbook.

8.3.20.13 Flight Level Considerations

For fuel saving purposes, CRZ will be performed at or near optimum FL

The initial cruise level requested during start-up should be the optimum level for the actual conditions, and not necessarily the initial flight level filed in the ATC Flight Plan. If the optimum flight level is not available, an alternate level may be requested, considering the higher level bearing in mind buffet margins.

8.3.20.14 Boarding

SP will confirm the final passenger count, and obtain permission from the Commander to close the doors. The cockpit door will be closed before closing the main doors.

8.3.20.15 Push Back

The Commander is responsible for the safety of all personnel during the push back. Particular attention shall be paid to the surrounding area, taking into account wing tip and jet blast clearance. Any doubts shall be immediately relayed to ground crew for verification prior to proceeding.

Where required, cross bleed starts shall only be conducted before or after pushback, with parking brake set to ON.

Prior coordination with ground crew and ATC shall be completed prior to cross bleed starts.

Under no circumstances shall cross bleed starts be done during push back.

8.3.20.15.1 Ground / Flight Deck Communication

The interphone is the primary means of communication between the flight crew and ground crew. Hand Signals, as published in the HK Express Ground Ops Manual, available on the flight deck, are the secondary means.

8.3.20.15.2 Interruption of Push Back

Where the flight crew requires the push-back to be stopped or direction amended, it shall be communicated via interphone and a read back must be obtained from the ground crew.

In the event that communications are lost after a pushback / pull-forward has commenced, hand signals shall be used as an alternate means of communication.

The party, flight or ground crew, who first notices or suspects a loss of communications (e.g. lack of acknowledgement of a request) may use the call system to draw the attention of the other party.

There is no immediate hazard if the tow tractor remains connected when communications are lost (e.g. flight interphone failure) as the aircraft is still within full control of the tractor.

In an eventuality that the loss of communications is combined with a tow bar separation event (e.g. headset gets disconnected after a tow bar separation event), uncontrolled aircraft movement may result, and ground crew may not be able to alert the cockpit with the use of the call system. Flight crew should take cognizance of such a scenario, even though it is considered remote and non-catastrophic, so as to be prepared for remedial actions as directed by hand signals from the ground crew.

Brakes shall not be applied without a "stop" hand signal (i.e. cross arms or cross hands) from the ground crew, except that, in the judgment of the Commander, the situation has a significant adverse effect on safety (e.g. imminent contact of aircraft with obstacle or personnel).

Note: The vast majority of HK Express' stations uses tow bars with a retaining pin (to prevent tow bar separation in the event that the shear pin fails), or tow bar less tractors. The use of such equipment further reduces the likelihood of the above scenario.

8.3.20.15.3 Re-establishment of Cockpit / Ground Communication

If Cockpit/Ground communications are to be re-established, standard hand signals, either by ground or flight crew, shall be used to initiate the reconnection. Exterior lights will not be used for signaling !

Particular care needs to be taken where it is necessary for ground crew to return to the aircraft and re-establish headset communications after the engines have been started.

The aircraft must remain stationary using the parking brake until the ground crew has disconnected from the aircraft and given the all clear signal.

8.3.20.15.4 Power Back, Reverse Back Procedures

PROHIBITED.

8.3.20.16 Start Up

Both pilots will monitor the engine start sequence.

If supplemental procedures are to be applied, both pilots will review the procedure together first. PM will read the procedure in detail, during the operational section of the CTWO briefing.

To perform the procedure, the PM reads the main items while the PF acts on the controls, including the overhead panel. He then responds after having performed the action.

E.g.

PM: 'X-BLEED…..OPEN PF: 'OPEN'

8.3.20.17 After Start

The AFTER START C/L shall only be requested after the PF gave the 'Clear to disconnect' order to the ground crew, and after both pilots confirmed that the NWS DISC amber indication is no longer displayed.

The ground crew will show the bypass pin and give the clear signal.

Taxi clearance shall only be requested after both PF and PM have sighted the ground crew hand signal and the bypass pin, if used.

Once taxi clearance is obtained, acknowledge "CLEAR LEFT / CLEAR RIGHT" respectively before releasing the parking brake.

8.3.20.18 Taxi

- **Single engine taxi is not approved**.
- As a general rule, the PF will perform the taxi.

- The PM writes down the taxi clearance in the scratchpad, and will read back in accordance with RT procedures. Once read back, the PF will confirm the taxi clearance by reading it from the scratchpad.

Note: writing down the clearances in the scratchpad in flight is not a recommended practice as it may delay the read back.

The PF is not permitted to write down anything in the scratchpad while taxiing.

- After verification of the taxi clearance, compare this with the planned taxi route, and, if different, use the airport taxi chart to brief and establish a "re-referencing" of the cleared taxi route. The PF should establish a mental picture of the taxi route.
- Ensure all flight crew members understand the assigned taxi route. If any crew member has a doubt, verify the taxi routing with ATC.
- The dome lights should be off for taxi, take-off and landing. Other phases preferably off or at a low setting to increase situational awareness (especially for weather avoidance).

Note: adequate cockpit illumination denotes good airmanship in regards of situational awareness.

- It is of utmost importance that maximum vigilance is maintained during taxi. Therefore, the taxi should be considered as a critical phase of flight.
- All actions (e.g. flight control checks, check lists, etc.) shall be done out of congested areas. When requesting them, the PF confirms herewith that he is ready to perform them by maintaining maximum vigilance for the taxi itself.
- Perform the flight control checks before starting taxi if LVP are in force, a short taxi route is expected or if no suitable long straight taxiway is available along the anticipated taxi route.
- Taxi speed should be adapted according to the situation, with safety as priority, and passenger comfort as the secondary concern.

  In no case will the taxi speed exceed:

  - 10 kt for (tight) turns of 90° or greater or in LVO;
  - 30 kt for turns less than 90°, or on straight taxiways.
  - 10kt on contaminated taxiway / runway.
- Thrust can be used during taxi operations so as to minimize the time taxiing in the areas of high utilization. Exercise caution for equipment and ground personnel.
- To limit tire wear and stress on the main gear struts, avoid tight/sharp turns when possible.
- After completing a turn, centre the nose wheels and allow the aircraft to roll straight ahead for 1-2m before stopping the aircraft to release the stress from the main gear struts.
- Full use should also be made of the visual aids. Note that there may be differences in runway/taxiway lighting and guidance systems between airports in different regions and countries.
- At all times, the crew shall fully comply with the ATC procedures.

- During taxi, maintain vigilance in monitoring RT transmissions in order to determine the position of other traffic on the airport.
- If obstruction clearance is in doubt, stop the aircraft. Consider requesting a wing-walker.
- PM shall progressively follow the aircraft taxi position on the airport chart by cross checking with signs and markings.
- When approaching an intersection, the PF shall announce his intended actions e.g. "turning right at A2", and the PM shall verify the route to be taken at the intersection. If any crew member has any doubt, verify taxi routing with ATC.
- Stop the aircraft if the clearance or the route to be taken is in doubt. Request progressive instructions if necessary.
- If the aircraft is cleared for takeoff from a different runway or from a runway/taxiway intersection that had not been planned, the crew shall re-compute the takeoff performance data and amend the FMGS. Crew shall also re-conduct the takeoff briefing, as appropriate.
- Especially for low visibility operations:
    - Call out all signs to verify position;
    - Delay checklist accomplishment until the aircraft is fully stopped.
- Do not allow ATC or anyone else to rush you.

8.3.20.18.1 Briefing Confirmation

The Takeoff Briefing Confirmation is performed by the PF.

It should communicate RWY / SID / initial altitude and any change that may have occurred since the full Takeoff Briefing was completed at the parking bay (e.g. change of SID, change in runway conditions, etc.).

A re-briefing is required if F-PLN or PERF has been changed. Maximum use of displays is recommended for confirmation of the changes.

If FMGS modification is required, as for a RWY change, a re-briefing should be performed with the aircraft stationary, covering the differences only as follows:

- SID and EOSID (Covering the charts number and date);
- differences in the EOSID.

If the "Before Take Off'" checklist had been completed previously, it should then be repeated to confirm the new data.

8.3.20.18.2 Runway Line-up

PF is to confirm the holding point and RWY before turning into the intersection, e.g. "Juliet 2, RWY 07R".

Do not cross red stop bars unless specifically clear to do so by ATC.

When accepting a "line up and wait" clearance, be aware of aircraft on the approach, especially in low visibility conditions.

Line up clearance should not be accepted until the Commander has ensured that the cabin is ready for takeoff, except if back track is required and the cabin is expected to be ready upon line up:

- The SP will use the cabin interphone to communicate Cabin Ready.

- PM advises the cabin: "CABIN CREW BE SEATED FOR TAKEOFF" via PA and SP will select "CABIN READY" before entering the RWY.

The departure runway shall be identified by all pilots prior to entering the active runway. The assigned runway should be identified visually by reference to its location/runway designation signs or runway designation as appropriate.

Line up without delay when cleared to do so.

It is recommended not to set the parking brake when lined up.

8.3.20.19 Takeoff

8.3.20.19.1 Takeoff Clearance

All pilots must confirm takeoff clearance obtained prior to starting the takeoff roll.

8.3.20.19.2 Tail strike considerations

All pilots must have good awareness of FCOM sections on tail strike risk factors and mitigation strategies.

8.3.20.19.3 Reduced Thrust Takeoff

The use of reduced thrust takeoff is the standard procedure for takeoff.

If, during takeoff, conditions are encountered where additional thrust is desired, thrust may be increased to full takeoff thrust.

Reduced thrust takeoff is NOT allowed when:

(1) Windshear is suspected / reported;
(2) Severe turbulence is reported along the takeoff path;
(3) Taking off on a contaminated runway;
(4) Braking action   Medium;
(5) Taking off with deactivated brake(s), if no specific RTOW chart available;
(6) Landing gear will remain extended after takeoff;
(7) A LVTO is to be performed.

8.3.20.19.4 Takeoff Flap Setting

Flexible Takeoff

A comparison will be made between the different flap settings; select the configuration giving the highest flexible temperature.

If the comparison results in equivalent performance (same flex temp), the crew should select the configuration associated with the lowest takeoff speeds.

The highest flap setting will only be considered in MTOW calculation.

MTOW Calculation

When performance limited, the performance benefits from a different flap selection shall be considered first before considering the Air Conditioning Performance benefits.

Three configurations are produced on the chart. This enables the crew to select the one giving the highest permissible takeoff weight.

In case of equivalent performance, retain the configuration giving the lower takeoff speeds.

Air-Conditioning Packs

The standard procedure is to take off with the air-conditioning packs ON.

If the takeoff is performance limited, consider setting the packs to OFF, or the APU Bleed to ON. This will improve performance when using TOGA thrust.

Contaminated Runway

Reduced thrust takeoff is not permitted on a contaminated runway. Full thrust shall be used for takeoff.

Takeoff on a contaminated runway is not permitted when:

(1) Any thrust reverser is inoperative;
(2) There is a tailwind condition;
(3) The cross wind component is greater than the cross wind limit;
(4) Brake Unit(s) is/are deactivated;
(5) Runway contamination is above the max depths as per FCOM;
(6) Reported braking action is POOR or NIL.

Runway Intersection Takeoff

Takeoff from a runway intersection is permitted if the remaining runway meets the aircraft takeoff performance requirement in the prevailing circumstances, including aircraft weight, obstacles, weather, noise abatement, etc.

Before accepting a runway intersection takeoff, the flight crew will make a takeoff performance calculation for that specific intersection, or a more limiting intersection, and verify that all requirements have been met.

All efforts will be done to avoid excessive thrust for the particular takeoff position as the use of flex thrust may reduce maintenance costs.

Engine Spool Up

Be careful with asymmetrical engines spool up when setting TO thrust.

Takeoff thrust will only be set after initial spool up of both engines, and aircraft is lined up within 5 degrees of the runway heading. This is particular important in case of a rolling takeoff. Do not delay the Takeoff thrust setting to the completion of the take off clearance confirmation.

Exact initial thrust setting is not as important as setting symmetrical thrust, therefore wait for engines to stabilize before setting TO thrust.

Minimum Turn Altitude

HKEA's' policy is that no turns (change of track by more than 15°) shall be made below 400 ft AGL, unless authorized to do so for obstacle clearance, specific SID or noise abatement requirements.

Noise Abatement Takeoff Procedure

Strict adherence to routing and other procedures specified by the published departure procedure from local authority are necessary to adhere to noise restrictions.

Specific NADP procedures are published in the OM-C when applicable.

Where there is no specific NADP specified for a departure, NADP 2 should be used.

8.3.20.19.5 Engine failure on Takeoff - EOSID

Navtech offers the analysis of runway and obstacles for requested airports regarding e.g. runway length, runway slope, takeoff positions, etc.

Navtech provides HKEA with determined EOSIDs considering the obstacle situation.

The surveillance and maintenance of the airport/obstacle data and EOSIDs will be carried out by using - and in accordance with - Source Information (Notam, AIP, AIC and respective amendments).

The general principles are explained here. More details are available in the HK Express Takeoff Performance Manual. In case of contradictions, the later will prevail.

8.3.20.19.6 Engine Out Procedure Criteria

- TOW shall be calculated based on NAVTECH supplied airport obstacle data.
- Directions used in the engine out procedures are TRACK unless clearly stated.
- No turns before departure end of runway (DER) (applies even if Engine Out turn altitude is reached).
- V2 speed for correct configuration until clean up initiated. If the engine fails at a higher speed, maintain the IAS obtained at the time of the engine failure. However, do not exceed V2+20.
- Terrain clearance is provided for engine failure at V1 and any point after V1. If engine fails after turn point or turn altitude for the SID, necessary obstacle clearance is provided if turn is performed as stated in Engine Out Procedure or shortest way to HP.
- The Engine Out procedure holding pattern (HP) might be the same as the official HP but with the official altitude omitted. If no official HP is available, or due to obstacle limitations, a special Engine Out procedure HP will be described.
- Obstacle clearance is provided from V1 to the Engine Out procedure HP. The altitude reached when entering the holding patterns is calculated to be safe, but since it may be lower than the official ones as different design criteria are used, no altitude will be depicted in Engine Out procedure HP's.
- The use of "Maintain V2 TKOF flaps in first turn" is to mandate no acceleration phase to be initiated before or during the turn.
- Any pilot-defined procedure not recalled directly from the nav database if in IMC conditions shall be flown in selected mode until reaching the MSA.

E.g.

- SID = EO SID -> managed mode authorized (NAV)
- EO SID created point to point and in IMC -> selected mode only (HDG)

8.3.20.19.7 Standard - Non-Standard EOSID

	Initial Track	First Turn
STD	RWY Track	Must initiate at 1500' AAL
NON-STD	RWY Track	Before or After 1500' AAL. At stated turn point or turn ALT

Note: First turn and minimum acceleration altitude not below 400' AAL

Examples:

"**STD**"

Will be used for all procedures with a straight climb to 1,500ft above runway end threshold before turning to the engine failure holding pattern.

Airport: RKTU/CJJ -> Elevation: 185' -> Runway: 24L/R

> STD. At 1700 turn LEFT to CHO HP. D109.0 CHO HP: Inbound 060°, LEFT turn.

"**NON-STD**"

Will be used for all procedures with an initial turn before or after 1,500ft above runway end threshold.

Airport: VHHH/HKG -> Elevation: 28' -> Runway: 07L

> NON-STD. TRACK to ROVER, turn RIGHT to ROBBE. (Maintain V2 TKOF flaps until ROBBE). At ROBBE turn RIGHT to RAMEN, turn RIGHT to SOKOE HP. SOKOE HP: Inbound 250° LEFT turn.

(For both the "STD" and "NON-STD" procedures the initial climb will be the runway TRACK unless otherwise specified.)

Use of "JOIN"

In the case where the hold point is straight ahead, the term "JOIN" may be used:

> NON-STD. JOIN XYZ HP.

The intent is that the hold is to be entered upon reaching the hold point. Obstacle clearance is assured throughout the transition from entering the hold until established in the hold. "JOIN" is always preceded with the NON-STD designation.

8.3.20.20 Climb

8.3.20.20.1 Climb Thrust

Use of MCT to achieve a climb restriction is not allowed. This thrust rating should only be used when required to ensure safe flight (engine failure).

8.3.20.20.2 Climb Speed

As a general rule, the climb speed for all normal operations is ECON CLB speed, calculated by the FMS, based on the OFP Cost Index.

When the airport elevation is more than 1,000 ft, the FMS speed restriction 250/10,000 shall be adjusted manually during the FMGS setup, taking into account the airport elevation.

E.g. Takeoff - Airport Elevation 5,400 ft ->FMGS 250/15,400

Above MSA, and conditions permitting, consider requesting cancellation of the SID and 250 < 10,000 ft speed restrictions.

When clear of congested traffic area, the PF can then request the PM to clear the speed restriction(s) in the FMGS. The priority is to fly the managed speed.

The selected high speed should be close to the econ climb speed above 10,000 ft (approx 290 kt).

Only if assigned an intermediate level due to traffic or airspace restrictions, the speed can be increased to a speed like 320 kt, taking into consideration both weather and turbulence. This should be communicated and agreed to by both crew.

The transition from 320 kt to the econ climb speed is recommended to be performed progressively to avoid an excessive pitch up with speed on Elevator.

The climb speed might have to be reduced to comply with altitude restrictions (e.g. HKG FIR exits).

For best energy management the speed reduction shouldn't be done too early.

8.3.20.20.3 Climb Rate

To prevent the generation of unnecessary TA/RAs, limit the rate of climb to 1,000 ft/min if other traffic is in the vicinity, as displayed on the ND.

This is especially valid for the Terminal Area and when above MSA.

8.3.20.20.4 Cabin Crew Release

When above MSA and conditions permit (anticipate weather conditions), cycle seatbelt sign OFF-ON as a signal to cabin crew that they may leave their seats.

8.3.20.20.5 RVSM Airspace Entry

Prior to RVSM airspace entry, the two primary altitude indications (PFD indications from the onside ADR, or ADR 3) should be silently crosschecked to be within tolerances. Any difference exceeding 90ft should be investigated.

AP must be ON in RVSM airspace.

8.3.20.21 Cruise

8.3.20.21.1 Cruise Level

The Flight Crew will make all efforts to obtain the optimum cruising level.

The cruise level should be the appropriate flight level nearest to the optimum level taking into account maneuvering margins and economy. FMGS wind, temperature and TROPO should be updated continuously for an accurate OPT calculation.

Air traffic situations, such as flight level congestion, may make it necessary to cruise near the maximum performance altitude of the aircraft. When cruising within 1,000 feet of the Maximum Altitude with reference to minimum maneuvering margins, the following considerations and precautions should apply:

(1) Weather at the required flight level is clear and there is no forecast of moderate or severe turbulence;

(2) Airspeed is to be monitored closely. Speed reduction due to turbulence or ATC requirements will reduce maneuver margins;

Initiate a step climb to the next appropriate flight level when indicated by the FMGS, if available.

If the step climb point is not available from the FMGS, initiate a step climb in accordance with the OFP.

The forecasted winds and temperatures must be entered as comprehensively as possible for an optimal flight level to be accurately predicted by the FMS. If the strong cross winds are entered at a lower altitude, the FMS may even predict an optimal flight level lower than present. Thus, optimum altitude is not just a simple, direct function of altitude capability. This is only true if there are no winds at all flight levels.

If a climb is made to an altitude where wind conditions are adverse, consider returning to the previous altitude.

The fuel saved at higher altitude is justified if a step climb is initiated with a new cruise level with time at the higher altitude is 20 minutes or greater.

8.3.20.21.2 Cruise Speed

The flight crew is not permitted to increase the cost index, even if the flight has encountered a delay. Selected Mach/Speed may be used to increase the speed only if requested by ATC

8.3.20.21.3 Non-Standard Flight Levels

Normally, crew should not accept a non-standard level. However, if cruising at a non-standard FL, flight crew shall:

(1) Ensure that the term, "Non-Standard Flight Level" is appended to their normal position reports;

(2) Climb/descend to the appropriate semi-circular FL prior to FIR crossings into airspace where non-standard FLs should not be accepted.

8.3.20.21.4 RVSM

When operating in RVSM airspace, regular crosschecks (top of climb and at hourly intervals) of the altitude indications shall be made.

The max difference for RVSM operations is 200 ft.

8.3.20.21.5 Weather update

The Flight Crew will monitor weather information during the en route phase of flight, to include current weather and forecasts, as applicable, for destination, destination alternate and en-route alternate airports.

The monitoring of the above, including sigmets and other operationally relevant phenomenon may be done through all communication means possible, including ACARS, Volmet and Flight Information Services provided by ATC.

The above requirement shall take into account the validity of the weather information and significant changes/trends affecting the relevant situation.

The weather monitoring shall be done wisely (i.e. do not print unnecessarily, and only request it at intervals that really accommodate an appropriate analysis).

8.3.20.22 Descent

8.3.20.22.1 Descent Preparation

Arrival announcement to the passengers should be completed prior to top of descent.

Descent preparation and approach briefing can take approximately 10 min, so they should be accomplished within approximately 160 nm before top of descent.

Assess the risk of the approach & landing, by evaluating Man-Machine-Environment conditions. Include it as part of the Approach Briefing to improve awareness of the factors that can increase the risk of an accident.

Where relevant, apply corrections to all minimum altitudes, inclusive of any 'hard' altitudes on final approach, and to the DA/MDA and missed approach altitudes.

All relevant safety altitudes shall be briefed prior to descent.

8.3.20.22.2 Descent Speed

The descent speed will be:

- the FMGS calculated speed based on the OFP Cost Index;
- 250 kt below 10,000 ft AAL.

  If requested by ATC, high speed can be maintained below 10,000 ft. However, descent speed shall be reduced to:

  - 230 kt below 3,000 ft AAL

The acceptance of ATC requests for a high speed descent in excess of the above limit is not permitted.

Unless operationally required, ATC assigned speed reductions should be positively complied with. Crews should ensure a speed reduction of 1 kt/sec; appropriate mode shall be used to ensure compliance.

ATC assigned speeds shall be adhered to within ± 10 kt.

When the airport elevation is more than 1,000 ft, the FMS speed restriction 250/10,000 shall be adjusted manually by the flight crew, taking into account the airport elevation.

E.g. Arrival - Airport Elevation 4,500 ft ->FMS 250/14,500

8.3.20.22.3 Descent Adjustment

To increase the rate of descent, increase descent speed (by use of selected speed) if comfort and ATC permit. It is economically better (Time/Fuel). However, a reasonable buffer from Mmo/Vmo must be maintained to avoid overspeed.

Maintain high speed as long as possible. (SPD LIM may be suspended, subject to ATC clearance).

If the aircraft is high and at high speed, it is more efficient to keep the high speed to altitude capture and decelerate, rather than to mix descent and deceleration.

If the aircraft is high on descent profile and the desired flight path cannot be established on approach, ATC should be notified early for timely coordination.

Do NOT conduct 360° turns on final as obstacle clearance may not be guaranteed.

8.3.20.22.4 Descent Rates

The following values for the rate of descent shall not be exceeded:

Altitude (AAL)	Maximum Rate of Descent
2001-3000	3,000 ft/min
1001-2000	1,500 ft/min
0-1000	1,000 ft/min

Maximum level off using an altitude lead equal to 10 percent of the rate of descent (e.g., 200 feet lead at 2,000 fpm) should be used.

In terminal areas with high traffic density, the rate of descent should not be excessive when approaching level-off in the vicinity of traffic in order to minimize the occurrence of TCAS TA/RA due to high vertical closure rates.

To prevent the generation of unnecessary RAs, limit the rate of descent to 1,000 ft/min when within 1,000 ft of the target altitude if other traffic is in the vicinity, as displayed on the instruments.

8.3.20.22.5 Radar Vectoring

Crews should monitor the position of the aircraft and the relationship of its altitude to the MSA in the area and confirm that each descent clearance below MSA is safe.

If an ATC Surveillance Minimum Altitude Chart (ATSMAC) is published, this should be used to confirm that the cleared altitude is above the published minima.

If there is no ATSMAC available, crews should refer to the MSA contours/terrain and obstacle information on the procedure chart in use.

However, the minimum terrain clearance associated with radar vectoring is nominally 1,000 ft within 5 NM of the aircraft; and 15 NM ahead and 20° either side of the aircraft's track within 30 NM of the radar antenna associated with the unit providing the service. When the aircraft is within 15 NM of the antenna, and provided an ATSMAC or approved procedure has been notified, these distances may be reduced to 3 and 10 NM respectively. Conflict may therefore occur between clearances based on these criteria and charted MSAs. Hence, pilots must be aware of the terrain clearance afforded by the chart MSAs to enable them to monitor the terrain clearance when under radar control.

The Enhanced Ground Proximity Warning System (EGPWS) terrain display function should be used to monitor the aircraft's position in relation to terrain when appropriate, and crews should familiarise themselves with the display logic.

It should be noted that radar vectoring altitudes assigned by ATC are not always temperature compensated.

Should a crew have doubt about the terrain clearance afforded by an ATC clearance, it must be immediately challenged.

Should crews experience an incident (e.g. EGPWS warning) that could have led to a CFIT event, it is important that a Mandatory Occurrence Report is filed giving the precise circumstances.

8.3.20.23 Holding

8.3.20.23.1 Flaps Configuration

When holding is required, this should be carried out in clean configuration unless ATC or standard holding procedures require a speed at which flaps must be extended.

8.3.20.23.2 Holding Pattern

Before entering the holding pattern, check that the FMGS holding pattern is the same as the published holding pattern on the chart.

Note: *If the holding pattern is not in the FMGS navigation database, the inbound course defaults to the leg course to the hold fix and the turn direction defaults to the right.*

8.3.20.23.3 Holding Speed

Strict adherence to the maximum holding speed is mandatory.

Requests to hold at a speed greater than the maximum holding speed should not be considered if the aircraft is below MSA, as this may result in the aircraft flying outside the obstacle protected area.

8.3.20.24 Approach

An autoland, where Authorized, should be accomplished in conditions of low visibility and/or low cloud base.

If conditions permit, a precision approach is preferred to a non-precision, visual or circling approach, and ATC should be informed accordingly.

Crew shall refrain from requesting or accepting a visual or circling approach when conditions are not favorable.

Crew are to ensure that the relevant briefing is conducted prior to an approach.

Should the type of approach be revised, or a change in runway occur, crew shall not commence or continue the approach unless the relevant briefing has been accomplished.

This will allow the crew to better prepare themselves, particularly when it involves a non-precision approach.

Because the approach briefing was conducted at the end of the cruise phase, crew should review the primary elements of the missed approach at an appropriate time during the final approach, especially when a missed approach appears likely.

During approach, the PF is either hand flying the aircraft or supervising the operation of the AFS. All pilots are encouraged to maintain their manual flying proficiency and may fly approaches with ATHR ON or OFF, if conditions permit. This should be communicated as part of the briefing.

Except for low visibility operations, the PM is responsible for monitoring the flight and acquiring and calling out visual references. He should scan alternatively inside and outside the cockpit. The PM should not lean forward in acquiring the visual references.

On a radar vector approach, ensure that the FMGS flight plan is sequencing normally in order to have the lateral navigation mode available for a missed approach.

When cleared for approach, the crew shall identify the navigation aid(s) on which the approach procedure is based.

Flaps shall be selected on the flap extension speed schedule. Before selecting the requested flap setting, the PM will closely verify that the actual speed is well below the VFE next (recommended at least 10 kt)!

The Approach Checklist shall be performed below 10,000 ft or after QNH/QFE is set and crosschecked, whichever occurs later.

8.3.20.24.1 Decelerated Approach

As a general rule, the "Decelerated Approach" technique will be applied, both for precision and non-precision approaches, with a priority towards a continuous descent.

In order to minimize fuel burn and keep approach noise as low as possible, a low drag configuration shall be maintained for as long as convenient.

When required by published speed control procedures or by ATC to reduce speed below the clean maneuvering speed, select the least flaps that will allow maximum maneuver capability at the required speed.

8.3.20.24.2 Stabilized Approach

This technique refers to an approach where the aircraft reaches 1,500ft in the landing configuration at approach speed.

This is the technique that will be applied when conditions such as adverse weather (LVO), technical defects or ATC restrictions prevent proper execution of the Decelerated Approach.

For approaches with technical defects, where prescribed approach patterns are published, follow the prescribed pattern and landing configuration.

8.3.20.24.3 Stable approaches

On an instrument approach, flight crew shall be in the landing config, on proper approach profile (i.e. GS, NPA vertical profile), and at proper speed by 1,000 ft AAL. By using the following technique of Gear down no later than 7 DME and fully configured by 5 DME, with speed reducing to final approach speed.

On a Visual Circuit/Circling Approach, flight crew shall be in landing CONFIG, on proper approach profile (i.e. PAPI, VASI) and at proper speed by 500 ft AAL.

On all approaches, flight crew shall be stable not later than as per table below:

Approach Type	Altitude
Instrument Approaches (**Regardless of VMC** or **IMC conditions**)	1,000 ft AAL
Visual Circuit/Circling Approach	500 ft AAL

Note: For circling approach, wings level latest at 300 ft AAL

All approaches shall be stabilized by:

- 1,000ft AAL on Precision and Non Precision approaches in instrument meteorological conditions (IMC) and in visual meteorological conditions (VMC), following technique of Gear down no later than 7 DME and fully configured by 5 DME, with speed reducing to final approach speed.
- 500ft AAL for Visual Circuit and Circling Approach approved only for specific airports as per Portpage.

Stabilization Criteria

An approach is stabilized when all of the following criteria are met:

- The aircraft is on the correct flight path and only small changes in heading / pitch are required to maintain the correct flight path;
- The aircraft speed is within +20Kts and - 5Kts relative to the target approach speed;
- The aircraft is in the correct landing configuration;
- Sink rate is no greater than 1,000 fpm; if an approach requires a sink rate greater than 1,000 fpm, a special briefing should be conducted;
- Thrust setting is appropriate for the aircraft configuration and & atmospheric conditions;

Note: Only if Ground speed Mini is active, is it acceptable for the Thrust to be less than normal approach thrust or even reducing temporarily to idle: it cannot be stabilized at idle;

- Instrument landing system (ILS) approaches must be flown within one dot of the glideslope;
- For a non-precision approach / visual segment, less than full high or full low indication on visual approach guidance (PAPI, VASI, etc.), unless the descent to a landing on the intended runway can be made at a rate of descent using normal maneuvers and where such a descent rate will allow touchdown to occur within the TDZ of the runway of intended landing;
- During a circling approach, wings should be level on final when the aircraft reaches 300 ft AAL;
- All briefings and checklists have been completed;

Note: Any reconfiguration of Landing flaps below 1,000ft AAL will require a go-around for an unstable approach.

Note: Unique approach procedures or abnormal conditions requiring a deviation from the above elements of a stabilized approach requires a special briefing, e.g. If wind shear / turbulence is forecast or reported, speed fluctuation may exceed the stable criteria's above but is acceptable if PF is in control and correcting.

Note: **Any other approach or an approach that becomes unstabilized below 1,000ft AAL in IMC / VMC or below 500ft AAL in a Visual Circuit which does not follow the unique approach criteria specified above, requires an immediate go-around.**

Do not attempt to land from an unstable approach, be go around minded.

8.3.20.24.4 Non-Precision Approach Strategy

Non-precision approaches shall be flown with a constant angle of descent after passing the final approach fix / final descent point.

Nav aid raw data and altimeters must be monitored constantly to confirm that lateral tracking is correct and altitude constraints are complied with.

Use of automatic flight is preferred.

For all continuous descent non-precision approaches, 50 ft shall be added to the published MDA.

8.3.20.24.5 RNP nomenclature & required equipment clarifications

<u>Nomenclature</u>:

- RNP APCH operations correspond to RNAV(GNSS) or RNAV(GPS).
- RNP AR APCH operations correspond to RNAV(RNP) requiring special approvals as documented on chart.

HKEA is only approved to perform **RNP APCH** operations, thus **RNAV(GNSS)** or **RNAV(GPS)** approaches.

The several approach procedure names that fall under the RNP APCH category, and that **can** be accepted:

- RNAV(GNSS) E.g. FUK 16
- RNAV(GPS) E.g. GUM 06L
- RNP E.g. MDL 35

Approach name that falls under the RNP AR APCH category, and that thus cannot be accepted:

- RNAV(RNP) E.g. HKG 07L

<u>Equipment</u>:

The required equipment for RNP APCH and RNP AR APCH operations is different. One of the differences is the L/DEV display on the PFD.

The L/DEV display on the PFD is not a requirement to perform our approved RNP APCH approaches. The lateral deviation (XTK error), if any, will be monitored on the ND.

Some of our aircraft are not equipped for RNP AR APCH operations. However, **all our aircraft are equipped for our <u>approved</u> RNP APCH operations.**

The required equipment for RNP APCH operations is available in the FCOM.

8.3.20.24.6 Visual Manoeuvring (Circling)

Visual manoeuvring (circling) is the term used to describe the visual phase of an instrument approach required to position an aircraft for landing on a runway which is not suitably located for a straight-in approach.

This manoeuvre must be initiated only after ATC authorization has been obtained and the pilot has established the required visual reference. If a published procedure for a circling approach is available, it must be applied.

Circle to land minima are calculated using three standards. The standards used by individual countries on the HKEA network are listed below. In all cases, the visual manoeuvring (circling) area is centred on the threshold of the runway.

PANS-OPS, TERPS and Japan TERPS assume values of minimum visibility available to the pilot at the lowest obstacle clearance altitude (OCA). These values are calculated differently.

CAUTION: When circling minima is presented on an approach chart, only the approach protected area defined by the appropriate regulations may be shown on the applicable approach chart.

There may be significant obstacles or terrain in the area immediately outside that defined by the circling TERPS rules. Such obstacles would as a result, be off the edge of the approach chart and not be evident to the crew. It is therefore of the utmost importance that the aircraft remain within the protected area while circling.

The Minimum Circling Height and Minimum Visibility for visual manoeuvring after an instrument approach are as the table below:

Aircraft Category	Circling Minima	Minimum Visibility
C & D	800 ft	4,600 m

Note: Under adverse weather conditions, especially strong winds, circling at 800ft AAL may not be possible within the protected area of FAA or Japan TERPS.

The Visual manoeuvring (circling) area is the area in which obstacle clearance should be taken into consideration for aircraft carrying out a circling approach. ICAO PANS-OPS uses a varying Minimum Obstacle Clearance (MOC), which increases with aircraft category, while TERPS and Japan TERPS use 300 ft as MOC for all aircraft categories.

Aircraft Category	MOC (PANS OPS)	MOC (TERPS)
D	394 ft	300 ft

The radius of the circling domain, Obstacle Evaluation Area for TERPS, Japan TERPS and Visual Manoeuvring Area for PANS-OPS that increases with aircraft category and is based on TAS and bank angle. An assumption of 25 kt wind factor, always added as a constant, without an assumption for the direction of the wind.

It is critical that the aircraft remains in the protected area as in the table below, where "**R**" = Radius from Threshold (NM):

Aircraft Category	R (PANS OPS)	R (FAA TERPS)	R (JAPAN TERPS)
D	5.28 NM	2.3 NM*	2.5 NM

*Circling approach area developed prior to 2011

Expanded Circling Manoeuvring Airspace Radius

(TERPS 8260.3B Change 21)

Circling approach areas for approach procedures developed beginning in 2013 use the radius distances (in NM) as depicted in the following table.

These distances, dependent on aircraft category, are also based on the circling altitude which accounts for the true airspeed increase with altitude.

Circling MDA in feet MSL	CAT D
1000 or less	3.6 NM
1001 - 3000	3.7 NM
3001 - 5000	3.8 NM
5001 - 7000	4.0 NM
7001 - 9000	4.2 NM
9001 and above	4.4 NM

8.3.20.24.6.1 Circling Approach - CHINA

When necessitated and approved by company NOTAM/port page, crews should exercise extreme caution when carrying out the approach and utilize on board navigation aids, as appropriate, to confirm the location of the airfield and orientation of the landing runway. Good situational awareness is essential. Because misidentification can occur with many uncharted military airfields in close proximity to civil aerodromes destinations.

8.3.20.24.7 Visual Approach

An approach when either part or all of an instrument approach procedure is not completed and the approach is executed with visual reference to the terrain.

Visual approaches are permitted with ATC approval. A careful lookout must be maintained throughout a visual contact approach.

Visual and Circling approaches must be fully briefed. Under no circumstances, except in an emergency, is an un-briefed visual approach to be carried out.

Pilots shall not use an RVR of less than 800m for a visual approach.

8.3.20.24.8 Number of Approaches

Accident statistics have shown that there have been approach and landing accidents where the crew have tried to force a landing after going around numerous times from the same approach.

Continuous attempts to force a landing in very adverse weather conditions that have led to numerous go arounds are extremely risky.

After two go arounds from the same runway due weather or unstable approach, a crew shall not attempt a third approach on that same runway, and shall evaluate an approach on a different runway or proceed to the alternate airport.

Of course, fuel becomes a major consideration at this point and the crew must ensure that, when flying into a destination with adverse weather where the possibility of a successful landing is limited, they have a good weather alternate, preserve their alternate fuel and act conservatively by keeping their alternate fuel in mind at all times so as not to get into a situation in which they would not have enough fuel to proceed to the alternate safely, if needed.

8.3.20.25 Go-Around Strategy

A go-around should be executed any time there is any doubt that a safe landing can be accomplished. Inadequate preparation or lack of commitment to execute a go-around is often a factor in approach and landing accidents. Crew should always be prepared to execute a go-around, and should land only if the approach is stable and if there are sufficient visual references to make a safe approach and landing. Crew should not in any circumstance attempt to rescue a situation and continue an approach that is likely to result in a hazardous landing.

Both the PF and PM can call for a go-around, upon which the PF will immediately react. Any further actions must be delayed until the aircraft is at a safe altitude.

Once the decision to perform a missed approach has been made, no decision to abandon this missed approach shall be taken.

Do not declare or revert to visual, unless positive identification of visual references for the runway are distinctly visible, identifiable and can be maintained. Visual references for runway identification would include any element of the approach or runway lights or the runway itself.

Initiate a go-around if the company stabilization criteria as mentioned before are not met or maintained.

On all instrument approaches, where suitable visual reference has not been established and maintained, execute an immediate missed approach when:

- A navigation radio or fight instrument failure occurs which affects the ability to safely complete the approach;
- The navigation instruments show significant disagreement;
- Any major aircraft system failure below 1000' AAL unless suitable visual reference is achieved and continuing to a landing is the safest available option.

On ILS Cat I final approach and either the localizer or the glide slope indication goes beyond 1 dot deflection

On ILS Cat II final approach:

- Excessive deviation alert below 500' AAL;
- 1/3 dot LOC or 1 dot G/S deviation below 200' AAL;
- Below DH visual contact is lost with approach/runway lighting system or visibility degradation does not allow safe continuation;
- Autoland cannot safely be concluded in TDZ longitudinally or laterally.

On an RNAV (GNSS) or RNAV (GPS) approach:

- An alert message indicating that the ANP exceeds the RNP or if crosstrack error becomes excessive;
- Loss of both GPS systems;
- Under radar control (vectors or SRA) if radio communication is lost and if the navigation instruments show significant disagreement.

If, at any time when below the MDA or DA/DH, visual reference cannot be maintained, a go-around shall be carried out.

If a landing within the touchdown zone is not assured and the remaining runway is insufficient to stop safely, execute a go-around.

If a go-around is executed prior to reaching the MAP, the aircraft shall overfly the MAP and then follow the go-around procedure, unless following the engine out procedure, where the procedure shall not be commenced before the DER.

After reverse thrust is initiated, a go-around is not permitted.

At a suitable time after the go-around, the crew should make an appropriate PA announcement to inform and reassure the passengers and cabin crew.

HKEA upholds any decision made by the crew to execute a go-around.

8.3.20.25.1 Engine Out Go-Around

The Engine Out Procedure will also be used for an engine out go around. In this case, the one engine out acceleration altitude will be 1,500 ft AGL or the minimum acceleration altitude, whichever higher.

The level off altitude will be at least the MSA. This might be different from the approach chart missed approach altitude!

8.3.20.26 Diversion

A flight should not continue towards the intended destination unless the latest available information indicates that a landing can be effected at the destination or the alternate airport.

Should there be an unsuccessful approach, the Commander shall reassess the situation and make a decision to divert or attempt another approach based on the ability to maintain safety. The flight path of the aircraft shall be secured prior to making an assessment.

The decision to divert in order to secure the safety and security of the operation is fully supported by HKEA.

When diverting to a destination alternate or enroute alternate, the PM should, as soon as possible, contact FOCC giving relevant information of the Alternate Airport, ETA and reason for the diversion.

FOCC shall assist by providing a flight plan and by relaying the message to the appropriate departments in the airline.

8.3.20.27 Landing

Under normal circumstances on long runway free of contamination, a simple comparison of LDA with a known reference distance may suffice.

Landing performance and distance calculations are completed for all destinations and alternates during pre-operational route analysis.

Aircraft landing performance must be assessed to ensure that the landing weight is permissible for the landing ambient and runway conditions at the destination or alternate airports only in the following situations:

- Runway length is less than 2,500 m;
- High Altitude Aerodrome Alternates;
- A malfunction or failure of an aircraft system will affect landing performance;
- Temporary shortening of runway length as advised by NOTAM;
- Runway condition is reported as contaminated (standing Water, slush, snow, ice)

All pilots must have good awareness of the FCOM sections on tail strike risk factors and mitigation strategies.

For landings on runways with LDA less than 2,500m, no aircraft defect requiring increased landing distance is allowed.

8.3.20.27.1 Touchdown

The desired touchdown point lies within a distance of approximately 200 to 700 meters from the runway threshold. Corresponding runway markings, position of VASIS/PAPI bars and touchdown zone lights (TDL) all assist to determine the correct aiming point.

Note: On runways with touchdown zone markings extending to 900 meters from the landing threshold at least 2 pairs of touchdown zone markings will be visible from the flight deck at touchdown.

Longitudinal touchdown shall be made in the touchdown zone on the runway beyond 200 meters after the landing threshold and before 900 meters from the landing threshold. Deliberate long landings are not permitted.

For runways with less than 2700m landing distance available, the distance between 200 meters from the landing threshold to 1/3 of landing distance available should be considered as the touchdown zone.

If touchdown cannot be accomplished within the touchdown zone, a go-around should be initiated with due regard to the remaining runway length. Spool-up time of engines, airspeed and angle of attack have to be considered carefully. Main wheels ground contact may occur during go-round.

Every effort shall be made to land on and along the runway centerline.

All landing performance calculations are based on touchdown at approximately 300 meters from the landing threshold.

8.3.20.27.2 Landing Performance

Landing Distance information is provided for normal and abnormal configurations, for various runway conditions or runway braking coefficient.

Actual landing distance is defined as the distance from the landing threshold to the point on the runway where the aircraft comes to a stop.

Landing distances are predicated on full braking effort.

The actual landing distance must be increased by 15% to determine the Required Landing Distance.

8.3.20.27.3 Braking Action Reporting

Friction measurements or braking action estimation may be reported:

- In plain language by the tower
- By the routine weather broadcast
- By snowtam

When necessary, ATC issues the latest braking action report for the runway in use to each arriving and departing aircraft. Pilots should also be prepared to provide a descriptive runway condition to ATC after landing.

Landing on contaminated runways with reported braking action POOR or NIL is prohibited.

8.3.20.27.4 Landing Flaps / Autobrake / Reverse thrust

HKEA recommends flap selection/ reverse thrust to best suit the high speed / exit for minimum taxi to the parking bay. A lower landing flap setting should be used when there is a possibility of wind shear.

Apply both reversers immediately after main landing gear touchdown.

Pilots should never hesitate to apply manual braking and make use of full reverse thrust whenever necessary.

Runway length and exit permitting, using idle reverse for landing is recommended. Thrust levers are to be positioned all the way to MAX REV, then without delay to IDLE REV, so that the engines do not accelerate towards maximum reverse thrust. This technique allows best performance of reverse thrust.

At 70 kt, if MAX REV is used, bring thrust to IDLE REV.

Reversers should be fully stowed before leaving the RWY to avoid FOD.

8.3.20.27.5 Automatic Landing (Autoland)

An autoland:

- must be only conducted on approved runways. The approval is stated on the port page.
- is strongly recommended on runways approved as such, if reported ceiling and visibility is closed to CAT I minimum.
- shall be conducted by the Captain (LHS) as PF, except during training flights or in an emergency.

For autoland:

- the ILS glide path angle must be within 2.5 to 3.15 degrees;
- the threshold crossing height must be within 40 to 60 ft.

8.3.20.27.6 Landing Clearance

The PF will confirm the landing clearance with the standard call out.

8.3.20.27.7 Vacating the Rwy

High speed exits should be selected to minimize taxi times and runway utilization times; both can be achieved with the correct management of speed control.

Maximum GS when initiating turn on RWY to vacate:

- Rapid exit taxiway: Cpt 50 kt - F/O & S/O 35 kt
- 90" deg turns or greater: 10 kt

8.3.20.28 After Landing

The after landing actions will only be started when the active runway has been vacated, and after the initial taxi clearance has been received & confirmed.

8.3.20.29 Taxi In

Single engine "taxi" is not approved.

8.3.20.30 Parking

8.3.20.30.1 Arrival at the parking position

Generally, parking positions require either electronic signaling or marshalling.

It is not permitted to self position onto a parking position for which either electronic guidance or marshalling is required.

Some of alignment and stopping guidance systems (AGNIS / APIS), using visual reference geometry, are based on the CM1 seat eye position. When parking on a stand using such a system, the CM1 is required to taxi the aircraft, as only he can judge the correct positioning of the aircraft using these systems.

When clearances are judged not to be adequate, marshalling assistance must be requested.

On non-guidance system stands, a marshalling service is normally provided.

Acknowledge all hand signals. Be aware that the "cut-throat" signal to shut down engines may be an urgent instruction rather than the last signal in a routine sequence of marshalling. If this is the case, do so even if you will be temporarily without AC power.

Some stands require neither. It is permitted to self position onto stands, which do not require electronic guidance or marshalling.

In either case, if there is any doubt about safety and clearance from an obstruction, the PF must stop short until the obstruction is removed, a marshaller is available, or the aircraft is towed onto the stand.

Even when following marshaller's instructions, the Flight Crew shall keep a look out to assure wing tip clearance.

Crews shall only turn off the beacon when N1 < 5%.

At the gate, after Eng Shutdown, ATC will be set on STBY, then to 2000.

8.3.20.30.2 Use of Parking Brake

After arrival at the parking position, the aircraft parking brakes shall not be released until:

- All engines have been shutdown, and
- The flight crew has ascertained that chocks are in place, and
- The ground engineer has advised/confirmed that it is safe to release the parking brake. Some parking stands require the parking brake to be left on, regardless of chocks - refer to OM-C for details.

Note: *Only the Commander has the authority about deciding whether or not to release the parking brake.*

When releasing the parking brakes, the flight crew shall confirm by external visual references that the aircraft is not moving.

8.3.20.30.3 APU utilization

For transit, more than 1h, shutdown APU, when external power is available, unless it is required for passenger comfort. If the transit is unknown and on completion of duty in HKG request for the GPU.

8.3.20.31 Securing

As a general rule, the Securing the Aircraft Procedure will only be performed if the transit period is longer than 90 minutes, or on the completion of duty.

If the APU has to remain running, the flight crew will only leave the aircraft after a proper handover to qualified personnel.

In no case will the APU be left running unattended.

If the "Securing the Aircraft" procedure is being performed, the Parking Brake shall be set / kept ON.

Securing the aircraft C/L will only be performed after all passengers disembarked the aircraft.

8.4 All Weather Operations (AWO)

8.4.1 Definitions

All Weather Operations include any taxi, take-off or landing operation in conditions where visual reference is limited by weather.

Low Visibility Operations (LVO)

Low Visibility Operations (LVO) are ICAO requirements imposed on Operators for the conduct of AWO. They are defined as:

(a) take-off (referred to as Low Visibility Take-off (LVTO)) with an RVR less than 400m.

(b) landing with an RVR less than 550m.

Low Visibility Procedures (LVP)

Low Visibility Procedures (LVP) are ICAO requirements imposed on airport authorities for the conduct of AWO. They are defined as:

Procedures applied at an airport for the purpose of ensuring safe operation during approaches below Standard Category I and during LVTO.

Note: *ICAO requires LVP to be in force for all take-offs below 550m RVR, not only LVTO (400m).*

8.4.2 General LVO Requirements

The table below details the HK CAD approved minimum DH, RVR and visual reference required to complete an approach to landing for all HKEA aircraft types (unless otherwise specified).

Company minima, as specified on the applicable Port Page, may be above the limits shown below.

(a) Approval to operate to LVO is indicated on the Port Page. The appropriate minima for take-off and landing are listed on the LVO port page.

LVO minima are derived from the higher of HK CAD, HKEA or State minima and shall be used in conjunction with the Navtech chart for the approach. This may be a CAT I plate, however a CAT II or CATIII approach plate must be used when so published, as certain states publish a different missed approach procedure for use solely during LVO.

Only HKEA derived LVO minima, as published on the LVO Port Page, shall be used for any LVO approach.

Navtech defined LVO minima on CAT II and III plates are not approved and must not be used for any LVO approach.

(b) In the case of CAT II DH, the minimum altitude specified is above runway threshold, therefore the published DH may be lower or higher than 100 FT due to undulating terrain at DH.

(c) CAT II approaches: Touchdown RVR (TDZ) is controlling and shall be at, or above, the published minima. HKEA policy is to designate Midpoint RVR (MID) as controlling. Rollout (Stop End) RVR (RO) is of an advisory nature and shall be considered by the Commander / PIC if relevant.

CATIIIA approaches: Touchdown RVR (TDZ) and Midpoint RVR (MID) are controlling and shall be at, or above, the published minima. Rollout (Stop End) RVR (RO) is normally of an advisory nature and shall be considered by the Commander/PIC if relevant. If MID RVR is temporarily unserviceable, RO RVR is controlling and shall be at, or above, the published MID RVR minimum.

CAT IIIB (No DH) approaches: Touchdown RVR (TDZ), Midpoint RVR (MID) and Rollout (Stop End) RVR (RO) are controlling and shall be at, or above, the published minima. In the event that one transmissometer is temporarily inoperative, CAT IIIB (No DH) operations may continue using the two remaining transmissometers and both reported RVRs are controlling.

(d) RVR readings must be available for all LVO approaches.

Reported visibility may not be factored to obtain an equivalent RVR for any LVO operation.

Note: *HKEA is approved for CAT II operations ONLY by HKCAD.*

8.4.3 Minima

LANDING MINIMA, RVR, VISUAL REFERENCE AND CROSSWIND LIMITS

	MIN DH	MINIMUM RVR			Visual Reference Required	Cross-wind max	Cross-wind max (Auto Rollout)	Head wind max	Tail wind max
		TDZ	MID	RO					
CAT II	100 ft	300 m	150 m	Advisory	3 consecutive lights, ALS or TDZ or RCL or RL, must include lateral element	20 kt	15 kt***	30 kt	10 kt
CAT IIIA	50 ft	200 m	150 m	Advisory *	3 RCL				
CAT IIIB (no DH)	0 ft	75 m **	75 m **	75 m**	Not required				

* MID RVR may be temporarily inoperative. In such cases, RO RVR reading is controlling and shall be at or above the published MID RVR minimum.

** Three transmissometers are required and are controlling. In the event that one transmissometer is temporarily inoperative, Cat IIIB (No DH) operations may continue using the two remaining transmissometers and both RVR reports are controlling.

***Crosswind Limit apply to Sharklet Aircraft.

8.4.4 RVR Deterioration

If the reported RVR readings decrease below the specified minima prior to 1,000ft AAL, the approach may be continued to 1,000ft AAL. If the RVR remains below minima at 1,000ft AAL, the approach must be discontinued (Approach ban).

If the reported RVR readings decrease below the specified minima below 1,000ft AAL, the approach may be continued to the DH/DA and, providing the required visual reference is established and maintained, the approach may continue to a landing.

On a CAT IIIB approach with 0ft DH, the landing may be completed, as visual reference is not required until after nose wheel touchdown.

8.4.5 LVO Operational Requirements

Pilot Flying (PF) and Pilot Monitoring (PM) shall be LVO qualified. The PF shall be the Commander / PIC operating from the left seat, except when an emergency or crew incapacitation exists. Before commencing Category II operations, PICs, or pilots to whom conduct the flight may be delegated, or who are new to the aeroplane type/class, shall meet the minimum requirement of 50 hours or 20 sectors on the type, including line flying under supervision; Command Trainees may operate as PF in the left seat with a LVO qualified Training Captain performing PM duties in the right seat.

LVO approaches shall be planned and flown using Automatic Approach procedures, planning to culminate in an autoland.

The Commander / PIC shall ensure the relevant Port Page is reviewed prior to commencing a LVO approach to confirm LVO approval and Port-specific requirements.

8.4.6 LVO Aircraft Requirements

For approaches to CAT III minima, use of Automatic thrust control system in the approach mode is mandatory.

8.4.7 LVO Airport Requirements

The Commander must be satisfied that Low Visibility Procedures (LVP) are in force before commencing any LVO approach. Clearance to fly a CAT II or CAT III approach is considered confirmation that LVP are in force.

Airport Operators will implement Low Visibility Procedures before commencing LVO operations.

Pilots must be aware of the ILS sensitive / critical areas and LVP holding points when taxiing to the runway and when taxiing to or from the LVP runway.

Serviceability of the airport surface area, navigation aids, ground equipment and services is the responsibility of the airport operator. When LVP are in force,

crews should assume the airfield operator has complied with all special procedures, lighting requirements and electrical requirements.

If RVR readings improve during the approach, ATC may cancel LVP and revert to CAT I operations resulting in a loss of signal protection for CAT II and CAT III ILS procedures.

At some airports, particularly in Europe, ATC may announce either on VHF or via ATIS, that LVO is operational to CAT II only. This permits ATC to reduce aircraft arrival spacing to less than that required for CAT III operations. The airport surface area is still protected, however ILS signals may be affected by preceding traffic due to the reduction in arrival spacing. Due to high traffic density at major international airports, it is unlikely that ATC will approve a Flight Crew request for a CAT III approach unless the RVR readings do not permit CATII operations.

8.4.8 RVR Reporting

Touchdown, Mid-point and Roll-out (Stop End) RVR readings shall be passed to aircraft when they are at or below specific values. These values vary depending on the regulatory authority but are generally below 800 metres. Changes in RVR values should be reported to the pilot in 50 metre increments with a delay not exceeding 30 seconds. When RVR is below 400 metres, these reports should be in 25 metre increments with a delay not exceeding 15 seconds.

8.4.9 Effect Of Failed Or Downgraded Ground Equipment

If an aircraft or airport systems failure necessitates a reversion to a degraded approach category, the approach may not commence (i.e. descend below 1,000ft AAL) or continue, if already below 1,000ft AAL, unless the RVR readings are at or above the minima for the degraded approach category.

Refer to Chapter 8.1.3.4

8.5 Extended Diversion Time Operations (EDTO)

8.5.1 General

The policy and procedures contained in this section are to be applied in addition to the standard Company policies when operating any specified EDTO routes. The information herein is necessarily concise. Further information may be obtained by reference to the appropriate regulations.

Without specific approval, all operations are limited to routes that contain a point no further than 60 minutes flying time (in still air) at the normal one engine inoperative (OEI) cruise speed from an adequate airport (refer to Chapter 8.1.5.2).

A route that contains a point further than 60 minutes flying time (Threshold Time) in still air at ISA conditions, at the one engine out cruise speed (Threshold Distance) from an adequate airport is an Extended Diversion Time Operation (EDTO) route.

The EDTO segment starts when the route is more than 60 minutes flying time in still air from an adequate airport and ends when within 60 minutes of an adequate airport.

EDTO routes may consist of more than one EDTO segment.

Certain documents may use the abbreviation ETOPS which is considered to mean EDTO.

8.5.1.1 EDTO Rule Approval

Approved EDTO Maximum Diversion Time	120 minutes	
Approved One Engine Inoperative Power Setting	MCT	
Approved One Engine Inoperative Cruise Speed (VMO)	A320-214: 401 KTAS	A320-232:418 KTAS
Approved EDTO Maximum Diversion Distance	A320-214: 802 nm	A320-232: 835 nm
Approved EDTO Area of Operation (EAOO)	Refer OM C Route Manual	
Approved EAOO ATC requirements	Controlling unit must provide VHF/HF freq.	

8.5.1.2 Airport Approval

All airports contained in the OM-C are adequate airports for the purposes of EDTO except those listed below:

Table 8-23: Adequate Airport Exclusion List

Airport	Restriction	ICAO
NIL	NIL	NIL

8.5.1.3 EDTO Aircraft Approval

Airframe/Engine combinations approved for 120 minutes EDTO

A320-200	CFM 56-5B
	IAE V2500-A5

Modifications and specifications required for EDTO are listed in the A320 ETOPS CMP Document published by AIRBUS, and their embodiment is monitored by the HKE Maintenance and Engineering department.

Compliance with the approved maintenance schedule requirements for EDTO is monitored by the HKE Maintenance and Engineering department.

8.5.1.4 EDTO Personnel Approval

Flight crews and flight operations officers must successfully complete an approved initial / recurrent training program before conducting or supporting EDTO operations.

Before operating unsupervised on an EDTO flight pilots must meet the minimum crew qualification and regency requirements listed in the OM-D.

8.5.2 Definitions

8.5.2.1 Adequate Airport

8.5.2.1.1 General

An adequate airport is an airport that:

- is available and equipped with runway of sufficient length; and
- is available and equipped with necessary ancillary services, such as ATC, sufficient lighting, communications, weather reporting, navaids, and safety cover; and
- has at least one approach navigation aid with a published instrument approach procedure (ground radar would also qualify).

8.5.2.1.2 EDTO Adequate Airport

For an EDTO adequate airport, the following additional points shall be considered:

- the availability of an ATC facility;
- the availability of at least 1 letdown aid for an instrument approach (ILS, VOR/DME, VOR, NDB, ASR or PAR)
- Rescue and Fire Fighting Services (RFFS) equivalent to ICAO Category 4 is acceptable for planning purposes only, when being considered as an EDTO enroute alternate.

8.5.2.2 Isolated airport

A destination airport for which there is no destination alternate airport suitable for a given aircraft type.

8.5.2.3 EDTO Suitable Enroute Alternate Airport

A suitable airport is an adequate airport with available weather reports, indicating that the weather conditions are at or above operating minima, and the runway condition reports indicate that a safe landing can be accomplished at the time of intended operation.

A suitable airport for EDTO dispatch purposes is an adequate airport which is confirmed to be adequate, and which satisfies the EDTO dispatch weather minima (planning minima) in terms of ceiling and visibility within the required period of suitability.

In addition, crosswind conditions forecast must be checked to be within the performance capability of the aircraft during the required period of suitability.

Field conditions should also be checked to ensure that a safe landing can be conducted with one engine being inoperative or with an aircraft system being inoperative (NOTAM's and SNOWTAM's should, therefore, also be reviewed in assessing the suitability of an adequate enroute alternate airport).

EDTO Enroute Alternates shall be listed on the OFP and ATC flight plan.

Note: *Departure, Destination and Destination Alternate Airport(s) may be used as EDTO Enroute Alternate Airport(s).*

8.5.2.4 EDTO Planning Minima

8.5.2.4.1 General

Weather forecasts for the nominated enroute alternates (including origin or destination airports if they are used to support an EDTO route segment) must be available prior to departure. Forecast conditions must meet the criteria for an EDTO suitable airport (refer to Chapter 8.5.2.3) for a period of one hour before the earliest estimated time of landing, and ending one hour after the latest estimated time of landing at that airport.

Approach	Cloud base	Visibility / RVR
Single ILS	600' or 400' above the lowest authorized DH; whichever is higher.	3000 m (2 statute miles) or 1500 m (1 statute mile) above the lowest authorized visibility/ RVR, whichever is higher.
NPA and circling	800' or 400' above the lowest authorized MDH; whichever is higher.	3000 m (2 statute miles) or 1500 m (1 statute mile) above the lowest authorized visibility/ RVR, whichever is higher.

Two or more ILS/MLS/PAR to separate runways: Where forecast wind and surface conditions indicate that two or more separate runways will be available within the Rule Distance, whether at one or more aerodromes, the relevant Planning Minima cloud base may be reduced by 200 ft and the vis by 1 km (½ sm).

Where forecast wind and surface conditions indicate that two or more separate runways will be available within the Maximum Diversion Distance, whether at one or more airports, the relevant Planning Minima cloud base may be reduced by 200 feet and the visibility by 1 km (½ statute mile).

Note: *Separate runways: 07L & 07R / Not separate but different runways: 07 & 29*

Probability forecasts (PROB) that fall into the period must be considered if the probability is 40 percent or greater.

Forecast change indicators (FM, TEMPO, BECMG) that fall into the period must be considered.

Gradual improvements (BECMG) may only be considered at the ending hour of the change period. Gradual deteriorations (BECMG) must be considered at the beginning hour of the change period.

If no change period is indicated, the change may be excluded with respect to planning minima. The Commander is expected to apply good judgement when excluding change indicators.

In addition to the ceiling and visibility criteria during the period of suitability, the forecast winds plus any gusts must be considered and shall be within the HK Express maximum crosswind limitations, taking into account the runway condition (dry, wet, contaminated).

When dispatching under the provision of the MEL, those MEL limitations, affecting instrument approach minima, shall be considered in determining EDTO enroute alternate minima.

All the criteria listed above shall be met at the planning stage of the flight, which ends when the aircraft dispatches from the origin airport.

The criteria are applicable for the intended use (see definitions: Period of Suitability) of the ERAs.

8.5.2.4.2 Period of Suitability

To declare an adequate enroute alternate airport as suitable to support a given flight, the ceiling and visibility forecast must be checked to meet the EDTO dispatch weather minima during a required 'period of validity', also referred to as the 'period of suitability', or 'window of validity'.

The required period of validity starts one hour before the earliest ETA at the considered enroute alternate airport, and ends one hour after the latest ETA at this airport.

The earliest ETA is computed considering a 2-engine diversion from the first Equitime Point (ETP) along the outbound route associated with the considered enroute alternate, at the normally planned cruise altitude and speed (i.e. assuming a diversion for any reason other than an engine or pressurisation failure).

The latest ETA is computed considering a 2-engine diversion from the second ETP associated with the considered enroute alternate, at FL100 or at the MORA, and at the LRC speed (i.e. assuming a pressurisation failure only).

The period of time between the earliest and latest possible use of the alternates is normally indicated on the OFP as 'window of validity'.

If necessary, a simplified conservative method may be used by the dispatcher to determine this period of time under the day's conditions, or to confirm the validity of the planning in case of flight delay.

The following conservative method may be used to define it manually:

<u>Beginning of the period of suitability:</u>

(Takeoff time) + (flight time to ETP before alternate) + (diversion time at normal cruise speed and altitude) - (one hour.)

<u>End of the period of suitability:</u>

(Takeoff time) + (Flight time to ETP after alternate) + (diversion time at long range speed FL100 two engines) + (one hour).

For delays in excess of one hour, a new period of time is defined.

8.5.2.5 Maximum Diversion Time

The maximum diversion time (e.g. 120 minutes) from an enroute alternate airport is approved by HKCAD. It is used only for determining the area of operation (OEI, ISA and still air) and is not an operational time limitation for conducting a diversion in actual weather conditions.

8.5.2.6 Maximum Diversion Distance

The maximum diversion distance is the distance covered in still air and ISA (or delta ISA) conditions within the maximum diversion time at the approved one engine inoperative cruise speed and at the associated cruise altitude (including the descent from the initial cruise altitude to the diversion cruise altitude). It is used for dimensioning the area of operations.

8.5.2.7 EDTO Area of Operation

The EDTO area of operation is the area within it is authorized to conduct EDTO, and is defined by the maximum diversion distance from an adequate airport(s). It is represented by circles centered on the adequate airports, the radius being the approved EDTO maximum diversion distance.

8.5.2.8 EDTO Entry Point (EENT)

The EDTO entry point is the point on the aircraft's outbound route which is 60 minutes flying time at the approved OEI cruise speed (in still air) from a suitable airport prior to entering the EDTO segment.

8.5.2.9 EDTO Exit Point (EEXT)

The EDTO exit point is the point on the aircraft's routing at the end of the EDTO segment and is 60 minutes flying time at the agreed OEI cruise speed (in still air) of a suitable airport.

8.5.2.10 EDTO Segment

The EDTO segment is the route segment from EENT to EEXT, wherein the aircraft remains within the approved EDTO maximum diversion time.

8.5.2.11 Equitime Point (ETP)

An Equitime Point is a point on the route which is located at the same flying time (in forecasted atmospheric conditions) from two suitable diversion airports.

The ETP is usually computed at the OEI cruise level.

The location of the ETPs is usually defined by the OFP, but can also be assessed by locating the mid-points (equidistance points) on a plotting chart or orientation chart, and by applying a wind correction (e.g. using the equitime number method or a wind correction scale).

Distance to ETP = (TD * H)/(O+H)

(TD = Total distance between airports / H = G/S returning at one-engine-inoperative TAS / O = G/S continuing at one-engine-inoperative TAS)

8.5.2.12 Critical Point (CP)

The Critical Point is an Equitime Point (ETP) on the route which is critical to EDTO fuel requirements if a diversion is initiated from that point.

The CP is usually, but not always (depending on the configuration of the area of operation and of the weather conditions), the last ETP within the EDTO segment. Therefore, the CP must be carefully determined by computation and the EDTO fuel scenario must be applied to each ETP.

8.5.2.13 Point of No Return (PNR)

The last possible geographic point at which an aircraft can proceed to the destination airport as well as to an available enroute alternate airport for a given flight.

8.5.2.14 Approved One Engine Inoperative Cruise Speed Schedule

The approved one engine inoperative cruise speed schedule is MCT/VMO at the aircraft weight achieved 2 hours after takeoff at MTOW (LRC at OPT altitude). This speed schedule is used only for planning and regulatory compliance.

In case of diversion, following an engine failure, the Commander has the authority to deviate from this planned speed depending on his assessment of the actual situation.

For details, refer to Chapter 8.5.1.1

8.5.2.15 EDTO Operation Checklist (EOC) Fig 8-12 / Diversion Decision Flow Chart

The EOC shall be issued with the flight documents for every EDTO flight. The Commander must ensure that the relevant EOC sections are completed during flight preparation, pre-flight and in-flight.

The EOC must be returned in the Flight Document Envelope.

On the back side of the EOC is the Diversion Decision Flow Chart as a guideline for the Flight Crew in the decision making.

8.5.2.16 EDTO Preflight Check

The EDTO Pre-flight Check is intended to verify the condition of the aircraft systems and equipment prior to EDTO flight. Special attention should be taken during inspection of the cargo compartment to ensure cargo fire suppression requirements are not compromised.

The EDTO Pre-flight Check must be carried out before each EDTO flight and 90/60 rule verification flight. It is not required for a non-EDTO flight.

Accomplishment of Pre-flight Check shall be recorded in the Aircraft Technical Log. If no discrepancy is found during the EDTO Pre-flight Check, the Authorized Maintenance Personnel shall make an Aircraft Technical Log (ATL) entry on the arrival sector page “Action Taken” column, stating:

“EDTO PRE-FLIGHT CHECK COMPLETED AND SATISFACTORY”

This Maintenance Release for EDTO provides the Flight Crew with the assurance that:

- The aircraft configuration has been checked and confirmed to comply with the configuration standards, and the EDTO dispatch requirements defined in MEL, and
- The EDTO Pre-flight Check has been accomplished.

8.5.2.17 EDTO Downgrade

If the MEL Item is not compliant for EDTO, or if the aircraft configuration does not fulfil the standards, an entry must be made in the ADD section of the ATL.

It is the responsibility of Maintenance to communicate this downgraded aircraft status to FOCC.

MEL Items limiting the EDTO rule time require a re-routing of the flight following a downgraded rule time (e.g. 90 minutes) or non-EDTO route as necessary.

After confirming that all EDTO ADDs have been rectified, the aircraft can be upgraded to EDTO Capable. Certifying Maintenance staff shall record “EDTO UPGRADE” in the ATL. After the upgrade, HKE MCC shall announce to FOCC for operation notification.

HKE MCC has an “EDTO Downgrade Upgrade Control List” which controls the EDTO defect and Downgrade / Upgrade numbers for EDTO aircraft.

8.5.3 Flight Preparation Requirements

8.5.3.1 Minimum Equipment List (MEL)

8.5.3.1.1 Maintenance release for EDTO

An EDTO Pre-flight Check must be carried out at each station where the aircraft is to operate EDTO, and must be released by an EDTO Authorized Maintenance Personnel (EAMP).

Refer to Chapter 8.5.2.16 EDTO Pre-flight Check.

8.5.3.1.2 Technical Discrepancies

If a discrepancy is found during the EDTO Pre-flight Check, reference will be made to the MEL to verify whether EDTO ops are authorized or not.

The MEL contains all the dispatch requirements applicable to EDTO operations, and are clearly identified.

The MEL may also reflect the particular nature of the area of operation in terms of:

- Maximum diversion time,
- Redundancy and equipment of the enroute alternate airports,
- Navigation and communication means,
- Prevailing meteorological conditions,
- Other criteria, as applicable.

If EDTO is authorized, the same ATL entry “EDTO PRE-FLIGHT CHECK COMPLETED AND SATISFACTORY” will be made.

For MEL applicability, refer to Chapter 8.6.

8.5.3.1.3 Downgrading to “NON-EDTO” Status before dispatch

If the MEL-Item is not compliant for EDTO, or if the aircraft configuration does not fulfil the standards, an entry must be made in the ADD section of the ATL.

Refer to Chapter 8.5.2.17 EDTO Downgrade.

8.5.3.2 EDTO Dispatch Fuel Requirements

Normal HK Express fuel policy applies, with the exception that sufficient fuel and oil needs to be carried to allow a diversion to the nearest suitable EDTO ERA from any point of the intended route if one of the following failure scenarios occur:

- Engine failure only,
- Engine failure + pressurization failure,
- Pressurization failure only.

and predicated on the following:

- The flight shall be continued to the nearest suitable airport for landing;
- Hold at 1500 ft AAL over the nearest suitable airport for 15 minutes; and,
- Initiate an instrument approach followed by a missed approach then continue to a normal approach and landing.
- An additive for icing conditions during a diversion shall be applied when icing conditions are forecast. To satisfy this requirement, all EDTO OFP are calculated with penalties for engine anti-ice and airframe ice accretion applied.

8.5.3.3 Flight Planning

EDTO routes shall be planned so that the aircraft will, at all times, be within the approved maximum diversion distance from a suitable airport, nominated as ERA. The ERA(s) and locations of EENT and EEXT must be identified on the OFP. The ETP MORA is identified on the OFP for each ETP and must allow complying with oxygen supply requirement s at all times during a diversion (refer to Chapter 8.8.1).

For weather requirements, refer to Chapter 8.5.2.4 - EDTO Planning Minima.

NOTAMs must be checked to ensure that:

- The runway, required facilities and navigation aids for the enroute alternate remain available during the relevant period;
- Reliable two-way communication can be maintained between air traffic control and the aircraft over the planned route of flight and the routes to any enroute alternate;
- The navigation accuracy required over the planned route and altitude of flight, and the routes to any alternate and altitudes to be used in the event of diversion must be satisfactory.

The operations officer will ensure that:

- The aircraft assigned to an EDTO flight is approved for EDTO;
- Any known aircraft defect does not affect the planned EDTO flight;
- The filed route remains within the approved EDTO Maximum Diversion distance from an ERA;
- Any known NOTAM does not affect the planned EDTO flight;
- For the EDTO sector, the selected enroute alternate airports are suitable;
- The critical fuel scenario calculation is included on the OFP; and
- The EENT, ETP's & EEXT are shown on the OFP.

The checking process is annotated on the EOC and made available to the Flight Crew in the flight documentation envelope.

The Commander will ensure that:

- The filed route remains within the approved EDTO Maximum Diversion distance from an ERAA;
- Any known NOTAM does not affect the planned EDTO flight;
- The selected airports are suitable;
- The critical fuel scenario calculation is included on the OFP; and
- Any known aircraft defect does not affect the planned EDTO flight.

A manual CFS calculation is not required provided the EDTO OFP is generated by the approved computerized flight planning system, which automatically includes this calculation and indicates additional EDTO top-up fuel requirements, as required.

8.5.3.4 Critical Fuel Scenario (CFS)

The EDTO Critical Fuel Scenario is the scenario requiring the highest diversion fuel (CFR = Critical Fuel Required).

The engine failure alone is never fuel critical as the diversion is conducted at higher flight levels. One of the following scenarios will determine the Critical Fuel Reserve - CFR:

- An engine failure + pressurization failure, followed by an emergency descent to FL 100 or MEA/MORA, and a diversion at the OEI Diversion Speed, or
- A Pressurization failure only, followed by an emergency descent to FL 100 or MEA/MORA, and a diversion at LRC.

The critical fuel scenario is assessed by computing the required diversion fuel (for the respective diversion scenarios) in accordance with the diversion profiles defined in the FCOM and in accordance with the HKCAD requirements.

For the computation of the EDTO critical fuel reserve and of the complete EDTO critical fuel planning, the diversion fuel shall include the following fuel provisions:

- Fuel burn-off from the CP to the diversion airport in the worst case (one or two engines operative at the associated speed and at cruising flight level FL100 or higher if supplemental oxygen on board allows it);
- 5% of the above fuel burn-off, as contingency fuel;
- 5% fuel mileage penalty or a demonstrated performance factor;
- 15 minutes holding at 1,500 ft over enroute alternate airport at minimum clean speed;
- First approach with a go-around, followed by a second approach to landing;
- Effect of any CDL and/or MEL item;
- APU fuel consumption, if required as a power source (MEL);
- Any known ATC constraints.

And, if icing conditions are forecasted:

- Additional fuel for the effect of:
  - engine and wing anti-ice systems (see definition icing condition forecast for icing criteria), and
  - ice accretion on unheated surfaces.

In order to have at any point of the route sufficient fuel on board to fulfill the above criteria, it might be necessary to carry additional fuel to cover the critical fuel scenario of the planned route.

All critical fuel requirements are stored as ETP scenarios in the computerized flight planning system, and are automatically considered when an OFP is computed.

If required, calculate EDTO critical fuel requirement using OM-B FCOM (refer to section PRO-SPO).

If fuel remaining at critical point is planned to be less than fuel critical fuel required, the difference must be added as mandatory fuel.

Figure 8-10: Fuel for depressurisation all engines running

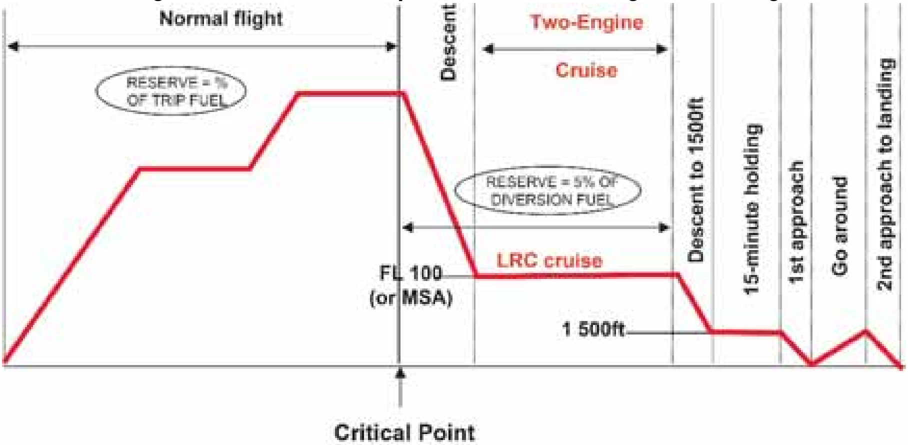
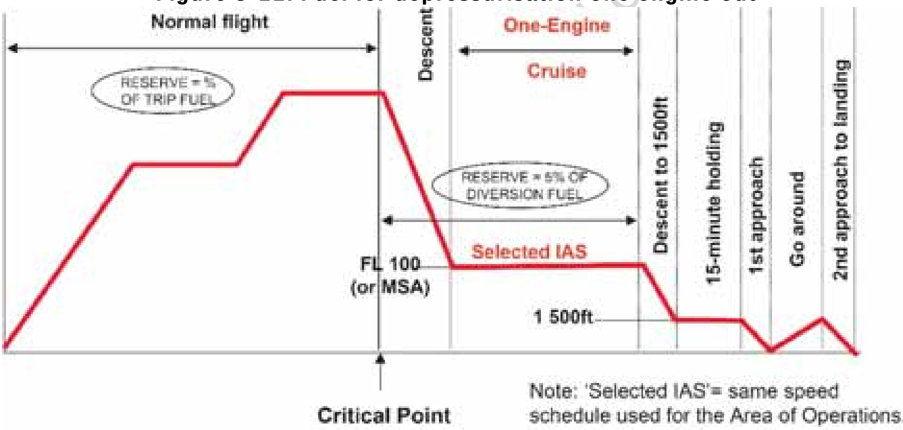


Figure 8-11: Fuel for depressurisation one engine out



8.5.3.5 EDTO Flight Documentation

For an EDTO flight, the operations officer will provide the Flight Crew with the documents that are provided for a standard flight, and the following additional documents:

- OFP, including EDTO specifications for the route (EENT, EDTO ETP(s), EEXT),
- EOC - EDTO Operations Checklist,
- EDTO Suitable Enroute Alternate Airport selection form.

Note: *the EDTO Enroute chart, with the area of EDTO operation limits corresponding to the suitable alternates is available in the aircraft.*

8.5.4 Pre Flight Procedure

8.5.4.1 General

The following procedures are in addition to the normal SOP's. It is expected that particular attention is paid to the FMS set-up, including cruise winds, temperatures, tropopause in order to have accurate predictions.

Additional requirements are defined in A320 PRO-NOR-SOP-06.

8.5.4.2 During Flight Preparation

The Flight Crew will verify that:

- the weather forecast and reports as well as NOTAMs of the proposed operating area and EDTO-ERA airports are in accordance with company operating minima throughout the duration of the flight;
- sufficient fuel is carried to meet the requirements of the EDTO sector, considering possible malfunction(s), and destination and ERA fuel requirements;
- the planned route remains entirely within the ruling distance from the selected EDTO ERA's;
- the declared EDTO capability of the aircraft is equal or greater than the applied ruling time for flight planning.

8.5.4.3 In the aircraft

- The actual technical status of the aircraft by consulting the ATL, the MEL/ CDL (if required), and the ADD with EDTO-capability of the aircraft;
- PRO-SPO-40-50 (FUEL X FEED);
- Perform a full alignment of the IRS's;
- In the FMS, enter the EENT, EDTO ETP(s) & EEXT as stored waypoints.(If time permits only);

Note: *Do NOT make these stored waypoints part of the active FPLN. All will be inserted by LAT/LON.*

8.5.5 Enroute

8.5.5.1 General

An EDTO flight is deemed to have commenced when the aircraft first moves under its own power for the purpose of taking off. However, if a failure occurs before the start of the takeoff roll, any decision to continue must be subject to pilot judgement and good airmanship.

Note that the HK Express MEL remains applicable until the start of the takeoff roll.

Once the flight has commenced, planning minima no longer apply. Enroute alternates remain suitable provided the weather conditions remain above the minima published in the HKEA OM-C plus increments, if any.

In-flight, where real circumstances vary from the plan, the Commander must evaluate the situation and take the most appropriate course of action dictated by the changed circumstances. This may well include revised speeds or alternate(s) other than those used at the planning stage.

The Commander may not accept any clearance that would place the aircraft beyond the Approved Maximum Diversion Distance from a suitable alternate airport (refer to Chapter 8.5.1. and Chapter 8.5.2.2).

Updated weather forecasts of nominated enroute alternates should be obtained by ACARS or VOLMET as soon as they are issued and before EDTO entry point. If this is impractical the TAF used during flight preparation suffices.

After engine start, check if any (not previously known) failure condition which may require to reassess the aircraft dispatch conditions.

At this point, the MEL EDTO restrictions must still be observed.

8.5.5.2 Before reaching the E.ENT

- In the FMS, enter the EENT, EDTO ETP(s) & EEXT as stored waypoints.
- If required, ask for the assigned primary and secondary HF frequencies, tune them and make a SELCAL check. If negative SELCAL, continuous listening watch on the HF frequency is required;
- Check the cleared routing on the EDTO enroute chart;
- Verify that the suitable airports are still above landing minima (highest of Navtech, Flight Crew or a/c minima);

Note: *EDTO Planning weather minima do not apply once in flight.*

Note: *FOCC shall relay any updated NOTAM or METAR/TAF/SIGMET/SPECI message if there is a significant change to the briefing provided at dispatch.*

- Check that all fuel scenarios are fulfilled before the EENT;

Appropriate course of action must be taken if the EDTO fuel requirements are not fulfilled before the EENT.

- To view the EENT, ETP & EEXT on the ND, select the EFIS waypoints button on PF's side; or insert the points as fix info. They will not be made part of the active FPLN
- Decision making before reaching EEP

Weather conditions for all ERAs need to be above the company or crew landing minima at ETA.

Should the forecasted minima at one or more of the declared ERA's be lower than the company or Crew landing minima, or should one or more of the declared ERA's become unavailable for whatever reason, then the area of operation must be reassessed (based on the remaining available suitable ERA's) and a re-routing or turn-back shall be considered, if required.

The aircraft systems status needs to be assessed.

Based on the overall assessment of the aircraft and weather conditions, the Commander confirms the decision to continue, re-route or turn-back and must comply with the relevant procedures, as defined in the OM.

It is the Commander's responsibility to ensure that, prior passing the EENT, there is sufficient fuel on board (FOB) to cover the provisions of the most critical fuel scenario (CFS).

8.5.5.3 Flight in EDTO Segment - Diversion Decision Making

Main Flight Crew duties at this stage of the flight will be monitoring and decision-making especially if a diversion becomes necessary. Flight crew must continue to monitor meteorological conditions of the EDTO ERA(s).

If weather conditions at an EDTO ERA deteriorate below landing minima, or the EDTO ERA becomes unavailable for any other reason, the Commander shall attempt to select another suitable ERA to support the route segment.

The new EDTO ERA shall represent the best option available at the time. In practice, the aircraft shall remain on its planned route and determine the closest suitable ERA to the route, which may be the next, or previous, planned ERA.

The criteria governing a re-routing or diversion decision are available in the A320 FCOM PRO-SO 40-50.

Abnormal configurations that leave the aircraft below the minimum acceptable system and equipment levels of serviceability in order to continue an EDTO are listed with wording to the effect of “requiring a diversion to the nearest suitable airport” or “a diversion is required”.

Note that the fixed speed technique is used solely to calculate the rule distances for flight planning purposes.

The Commander may adopt any diversion speed strategy he considers the most appropriate following assessment of the overall situation. There is no requirement to complete a diversion within the rule times used for flight planning purposes. Therefore, diverting to an ERA does not require flying the OEI diversion speed schedule (see above) unless the diversion is time critical, such as for a cargo fire or medical emergency, which would, in all probability, require the Crew to conduct the diversion at maximum possible speed.

The Commander has final responsibility for the safe continued flight of the aircraft and it is not realistic to direct a course of action appropriate for all circumstances. Flight beyond the nearest suitable airport is only justifiable by the Commander if all relevant safety factors have been fully considered and the decision made in the interests of greater safety.

If diversion is required, the Commander should take all relevant factors into consideration, as well as the shortest time to an alternate when choosing a diversion airport. There is no requirement to divert if the fuel on board at the critical point is lower than that required by the critical fuel scenario, provided estimated fuel at original destination is in accordance with the normal HKE fuel policy. A diversion decision flow chart can be found on the reverse side of the EOC.

During a diversion, the assessment of the overall situation results in selecting the most appropriate diversion speed strategy. There is no requirement to complete a diversion within the approved maximum diversion time used for flight planning.

Direct routing or re-routings provided by ATC shall be carefully considered to ensure the aircraft remains within the applicable Rule Distance of an ERA at all times.

8.5.6 EDTO Verification Flight

8.5.6.1 General

Verification flights to be carried out for the rectification of certain defects.

There are three types of Verification Flights for the defect rectification:

- A NON-EDTO flight, or
- A NON REVENUE verification flight, which could be a ferry flight or test flight, or
- The 90/60 Rule: a verification flight during the first 90 minutes of an EDTO revenue flight, prior to entry into the EDTO segment of the flight, during which the aircraft is planned within 60 minutes flying time of a suitable alternate airport.

Note:

- Unnecessary 90/60 verification flights should be avoided, due to the fact that the 90/60 Rule flight has to be flight planned as a NON EDTO routing which will necessitate extra fuel, a technical stop or reduced payload;
- The serviceability of the system or component must be positively established within the first 90 minutes of the sector;
- The 90/60 Rule is not acceptable after a dual engine change or after accomplishment of multiple of C (inclusive) checks;
- The 90/60 Rule is applicable only when verifying on an EDTO designated sector.

In all of the above alternatives, the duration of the flight must be sufficient to confirm rectification of the defects. HKE MCC is to ensure that the Flight Crew are adequately briefed with details of the verification flight requirements.

8.5.6.2 Verification Flight Procedures

For a 90/60 verification flight, during the first 90 minutes, the Commander will inform HKE MCC by ACARS with the result of the verification flight.

- If the first 90 minutes of the verification flight are successful, the remaining flight can be an EDTO flight;
- If the same defect reoccurred during the first 90 minutes of the verification flight, the remaining flight must be a non-EDTO flight.

On completion of the verification flight, the Commander will record the result of the flight in the ATL Defect Column.

The aircraft is acceptable for further EDTO operations only if the Commander reports in the ATL that the flight was satisfactory.

Figure 8-12: EDTO Operation Checklist (EOC)

EDTO Operation Checklist

FLIGHT INFORMATION			
Aircraft Type Model	Registration		
Date	Flight No.		
ETD	Destination		
PLANNING			
EDTO STATUS	**FOCC**	**PIC Sector 1**	**PIC Sector 2**
Aircraft status message			
Flight Crew EDTO Qualified			
EDTO route approval			
CDL / MEL EDTO Reference			
NOTAMS			
Departure Airport			
Takeoff Alternate			
Destination Airport			
Destination Alternates			
En-route Alternates			
WEATHER			
Departure Airport			
Takeoff Alternate			
Destination Airport			
Destination Alternates			
En-route Alternates			
Wind / Temperature Charts			
Significant Wx Charts			
SUITABLE AIRPORT			
Suitable Airport Selection Form			
EDTO OFP			
Cost Index			
EDTO Diversion Summary			
ENT / EXT/ ETPs / CP			
Critical Fuel Scenario			
Extra Fuel for EDTO (CP)			
Extra Fuel for CDL / MEL			
Final Fuel Order			

Name & Signature: ____________________ ____________________

Flight Operations Officer (FOCC) Pilot In Command (PIC)

Rev date: 03-Aug-2017 Rev.2 HKE-UB-034

Figure 8-13: Enroute Airport Selection Form

Hkexpress

SUITABLE AIRPORT SELECTION FORM

COMPANY MINIMA

Date: Route: HKG-GUM-HKG

Ref: Navtech Rev 201621

ICAO CODE Airport Name	RWY	APPROACH	WEATHER MINIMA Published CEIL ft	Published V/R m	EDTO PLANNING CEIL ft	EDTO PLANNING V/R m	REVISED EDTO PLANNING (Notam) CEIL ft	REVISED EDTO PLANNING (Notam) V/R m	PERIOD FROM H:M	PERIOD TO H:M
RPLL Manila	06	ILS	264	900	664	3000				
		LOC	364	2000	800	3500				
		VOR Y	644	2800	1044	4300				
		VOR Z	474	1800	874	3300				
		RNAV (GNSS) LNAV/VNAV	394	1600	800	3100				
		RNAV (GNSS) LNAV	444	1700	844	3200				
	36	ILS	300	800	700	3000				
		LOC	423	2000	823	3500				
		VOR Y	795	2900	1195	4400				
		VOR Z	795	2400	1195	3900				
		RNAV (GNSS) LNAV/VNAV	605	2100	1005	3600				
		RNAV (GNSS) LNAV	695	2400	1095	3900				

V/R = Visibility / RVR

Caution:

1. **Before dispatch, the crew must verify if any notam available regarding increase of landing minima (ceiling, vis).**

   If so, the new applicable planning minima will be entered in the REVISED EDTO PLANNING MINIMA columns.

2. ILS planning minima PGUM & PGSN

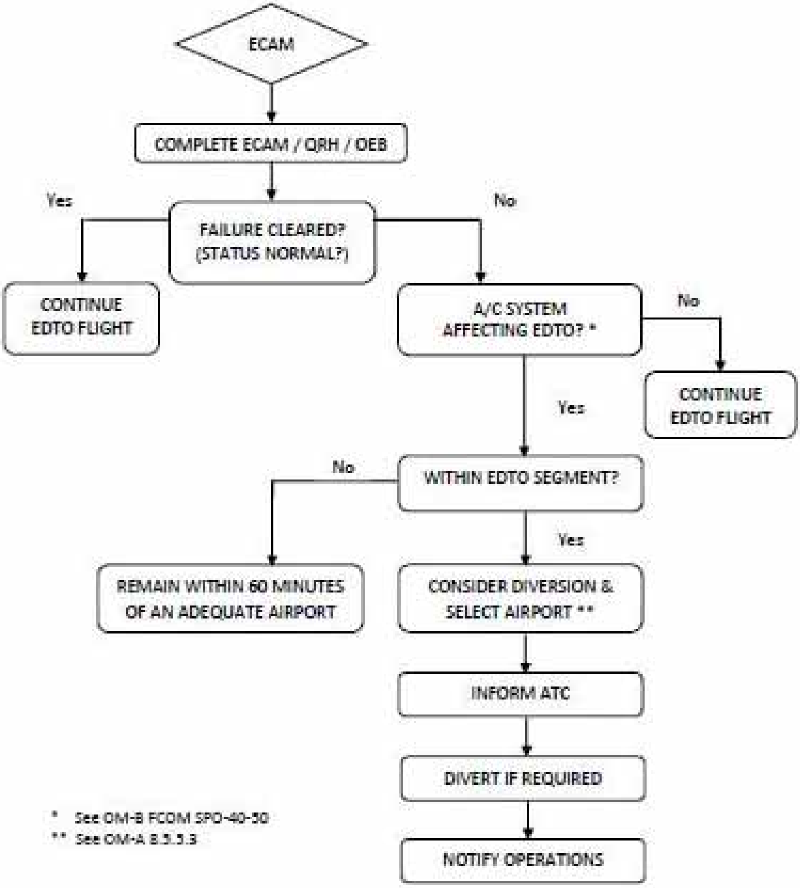
   The ILS planning minima in above table are based on the following regulation (OM-A 8.3.2.4):

   Two or more ILS/MLS/PAR to separate runways: Where forecast wind and surface conditions indicate that two or more separate runways will be available within the Rule Distance, whether at one or more aerodromes, the relevant Planning Minima cloudbase may be reduced by 200 ft and the vis by 1 km (½ sm).

   If only one ILS-runway would be available during the entire validity window or part thereof, whether due wind conditions, surface conditions or any other reason (maintenance), then the ILS planning minima will be increased by 200 ft and 1 km (½ sm) respectively.

Rev date: 7-June-2016   Rev.0   HKE-LIB-033

For guidance only. Crews should consider all relevant factors when making in flight decisions. Consult PRO-SPO-40-40 or QRH for further information.



* See OM-B FCOM SPO-40-50
** See OM-A 8.5.5.3

Rev date: 13-June-2016 Rev.0

8.6 Use Of The Minimum Equipment List And Configuration Deviation List

The Minimum Equipment List (MEL) lists all the safety-related items for which revenue flights are permitted, even if the items are inoperative at departure. The MEL specifies the dispatch conditions: the conditions to be fulfilled and the procedures to be performed, in order to permit the revenue flights to be flown with the inoperative item for a limited period of time.

Furthermore, the MEL must take into account the area of operation including whether the aircraft is being dispatched from base or an outstation.

Similarly to the above, the Configuration Deviation List (CDL) lists the aircraft secondary airframes that may be missing for a particular operation and pictorially indicates areas of damage to the aircraft skin/structure that is considered acceptable for flight. Any part not included in the list must be considered as necessary. It is important to repair the airplane at the first airport where repairs or replacements may reasonably be made, since additional malfunctions may require the aircraft to be taken out of service. No more than one part or one combination of parts of one system may be missing, except otherwise specified. Parts of different systems may be simultaneously missing, unless otherwise specified in this list. Missing parts may introduce performance penalties that are cumulative.

The Minimum Equipment List (MEL) is a document established by the operator and approved by National Authorities of the operator. Operator's MEL is developed on the base of Airbus Master MEL (MMEL) and customized by the operator as a function of its own operational policies and national operational requirements.

The MEL shall never be less restrictive than the MMEL.

The Configuration Deviation List (CDL) is a document approved by the Airworthiness Authority having certified the aircraft. The CDL is included in the Airplane Flight Manual.

The Commander shall not commence a flight unless he is satisfied that:

- The aeroplane is not operated contrary to the provisions of the Configuration Deviation List (CDL);
- The instruments and equipment are in operable condition except as provided in the MEL.

The Commander shall decide whether or not to accept an aeroplane with

unserviceabilities allowed by the CDL or MEL.

In the MEL, any item is deemed “inoperative”, when it does not satisfactorily fulfil its intended function, regardless of the reason.

An item is deemed to be inoperative when:

- It does not work at all, or
- It does not ensure all functions for which it was designed, or
- It does not consistently work within its designed operating limits or tolerances, or
- It is requested to be considered inoperative by the dispatch conditions, or

- It is not available due to a primary failure.

Whilst operating within the limits of the MEL / CDL, the aircraft is deemed to be airworthy and capable of operating within the specified environment.

The MEL is not intended to provide for continued operation of an aircraft for an unlimited period of time. Repairs should be made as soon as possible within the time limit imposed by Rectification Intervals.

Dispatch of the aircraft is not allowed after expiry of the Rectification Interval specified in the MEL unless the Rectification Interval is extended in accordance with the following:

- A one time extension of the applicable Rectification Interval B, C, or D, may be permitted for the same duration as that specified in the MEL provided:
  - A description of specific duties and responsibilities for controlling extensions is established by the operator and accepted by the Authority, and
  - The Authority is notified within a timescale acceptable to the Authority of any extension authorized.

Although the concept of Rectification Interval does not exist for the CDL, all CDL items are not allowed to be left un-rectified for an unlimited period of time as stated in the Flight Manual. However, a specific time limit is required in the dispatch condition itself for some items. Decision for repair is under the operator responsibility.

It is company policy that every effort be made to maintain 100 % serviceability with rectification being initiated at the first practical opportunity.

An aircraft must not be dispatched with multiple MEL / CDL items inoperative without the Commander having first determined that any interface or interrelationship between inoperative systems or components will not result in a degradation in the level of safety and/or undue increase in crew workload.

The exposure to additional failures during continued operation with inoperative systems or components must also be considered in determining that an acceptable level of safety is maintained.

In case of defect, engineering personnel will certify in the Technical Log adjacent to the appropriate defect the MEL / CDL subject title, system and item number together with any operational limitations.

At the completion of any engineering tasks associated with the particular MEL item, engineering personnel will placard the inoperative instrument, switch, light, etc.

When applicable, operational flight plan, take off and landing performance and fuel requirement penalties must be taken into account due to inoperative equipment or component.

When a MEL / CDL item is rectified, engineering personnel should make an entry in the Technical Log identifying the item and details of the rectification, including a statement that the MEL / CDL item has been removed. Appropriate MEL placards must then be removed from the cockpit.

8.7 Non Revenue Flights

8.7.1 Training Flights

Depending on the type of training being accomplished, the authorized Training Captain will occupy either pilot's seat to meet the training need.

In case of upgrade to command training or conversion training onto a new type, where the training or check Captain occupies the "Right Hand Seat", the Commander of the aircraft will be the training or the checking Captain. The pilot in the "Left Hand Seat" should carry out all duties assigned to that seat, except the signing of all required legal documents. In this case the pilot occupying the "Left Hand Seat" must be given the opportunity to exercise the privileges of the Commander, and the Commander shall only assume command of the aircraft if for safety reasons the situation dictates that.

8.7.2 Test Flights

Test flights fall into two categories:

8.7.2.1 Airworthiness Test Flights

These are non-revenue flights that are carried out to confirm an aircraft's performance and / or the correct operation of its systems. These flights are performed after special maintenance and / or repair work on an aircraft, or on the special request of the HKCAD. These flights will be performed in accordance with a flight test schedule and be subject to the following conditions:

- Each test flight will require specific approval from the HKCAD, which must be applied for and obtained by the Engineering Department prior to departure.
- Test flights shall only be conducted under the command of a suitably trained and qualified Test Pilot approved by the HKCAD.
- Test flights will be under the control and supervision of the General Manager Flying. Test flights shall be performed according to schedules approved by the HKCAD.
- The minimum flight crew, in accordance with the AFM, shall perform test flights.
- If it is required that additional personnel be onboard, such as engineers, mechanics or inspectors who were directly involved in the preceding work /inspection of the aircraft, their presence must be recorded in the flight log as additional crew members.
- The responsible engineer shall give the flight crew a briefing on:
  - the reason for the test flight;
  - the test programme; and
  - what effect, if any the preceding work might have with regard to aircraft performance or handling.
- The test flight should terminate at the airport of departure.

8.7.2.2 Post Maintenance Flights

Post maintenance flights are normal, but non revenue, flights that are carried out to confirm the correct operation of an aircraft or its systems after maintenance work including, but not limited to, the following:

- Double engine replacement
- Replacement or repair of primary flight controls.
- Each post maintenance flight will require approval from the HKCAD that shall be applied for, and obtained, by the GMF prior to departure, and conducted within the following conditions:
  - Crews will be selected according to the maintenance performed.
  - A special written briefing by the GMF or his designate or Duty Operations Manager, on the requirements for the flight, shall be given to pilots prior to undertaking the flight. This briefing will include, but not necessarily be limited to:
- The reason for the post maintenance flight;
- The test programme and what effect, if any, the preceding work might have with regard to aircraft performance or handling;
- The importance of recording, and post flight reporting to the responsible engineer, of any abnormality found during the flight.;
- Any other detail, specific to the particular flight in question.

8.7.2.2.1 Pre-flight Preparation

- The Captain shall be in possession of the GMF's special briefing on the requirements for the flight as specified above.
- Check that the Authorization permit is placed in the Maintenance Log.
- Check with ATC on routing and manoeuvre requirements.
- Check that fuel on board is not only adequate for the intended flight plus contingencies, but that it satisfies any conditions as might be required or specified for the particular flight.
- Secure the cabin and check the galleys, overhead storage bins and toilets for loose items.
- Arm the L1 and R1 doors only.

8.7.3 Delivery Flights

Delivery flights are flights where - after a purchase or lease agreement - an aircraft is flown from the manufacturer's, seller's or lessor's facility to the airline's facility or vice versa.

Provided all normal requirements - such as crew complement and equipment requirements - are met, non-revenue passengers may be carried if this is not excluded on the Certificate of Airworthiness and Certificate of Registration. Full insurance cover must be effective. For some delivery flights the HKCAD might issue only a “ferry permit” in lieu of the C of A and the C of R. This ferry permit may exclude the carriage of persons other than flight crew and engineers. For those flights with minimum crew and the permitted persons - other than flight crew and passengers - the GMF may specify acceptable deviations from the procedures required under HKCAD 360 and acquire permission from HKCAD.

Delivery flights may be combined with training flights provided the minimum crew, in accordance with the Aircraft Flight Manual, is on board. On those delivery flights, where all the requirements of HKCAD 360 and the company operations manuals are met (including all insurance coverage for commercial operations) passengers, including commercial passengers, may be carried, if the aircraft's registration is removed from the AOC only after the arrival at the final (delivery) destination.

8.7.4 Ferry Flights

8.7.4.1 General

A ferry flight, for the purpose of this , is a non-revenue flight by an aircraft in an abnormal configuration for maintenance purposes. The flight is conducted when an aircraft has a defect which impairs the aircraft's airworthiness thereby invalidating the C of A, but it is safe for flight, under certain conditions and restrictions, to a location where maintenance can be carried out. Ferry flights shall only carry designated crew members and personnel essential to the purpose of the flight - passengers are prohibited.

Unless otherwise stated, the ferry flight must be conducted in accordance with supplementary procedures provided in the Aircraft Flight Manual. The existence of an appendix or other ferry procedure in the AFM does not commit HKEA to undertake such a ferry but, such ferry flights which are outside the AFM, may be undertaken only after consultation with the aircraft manufacturer. Such flights must receive operational approval from the HKCAD.

8.7.4.2 Procedures

Development of technical and operational requirements prior to a ferry flight must be evaluated by the GMME and the GMF or, in his absence, his deputy. The procedure must consider all technical and operational aspects paying particular attention to existing deferred defects, current aircraft, engine, APU and ancillary equipment history. Consultation with the aircraft or engine manufacturer for statements of “NO Technical Objection” may be required.

8.7.4.3 Operational Approval

The GMF or, in his absence, his deputy will ensure that the operating crew are fully qualified and are aware of all special requirements that may vary Normal and Emergency Operating Procedures for the proposed flight. All telephone instructions must be confirmed by signal from Operations Control prior to flight departure. FOCC is responsible for obtaining over-flight permission (if required) from the states over whose airspace the flight will take place. The over-flight clearance request must clearly state the nature of the defect - e.g. Gear Down. FOCC will obtain the HKCAD's approval prior to the ferry flight.

8.7.4.4 Carriage Of Persons On Ferry Flights

No persons other than the designated flight crew are allowed on board an aircraft being ferried due to impaired airworthiness (e.g. Gear Down).

8.7.4.5 Meteorological Conditions

Except as provided below all ferry flights shall be conducted during the hours of daylight.

When due to the late availability of the aircraft or flight crew the maintenance flight cannot be entirely conducted during daylight hours, the flight may nevertheless be performed, provided the take-off is performed early enough to allow at least for the checks concerning flight controls, flaps, navigation equipment and engine in-flight relights to be completed prior to sunset.

If a maintenance flight has to be partially repeated, such flight may be conducted after sunset, provided none of those systems specified above is concerned, with the following exception: flight controls after minor adjustment, if visual checks are not necessary.

For ferry flights the non-precision AOM prescribed for the runway concerned shall apply.

8.7.4.6 Record Keeping And Reporting

Completed ferry flights conducted shall be reported to the HKCAD within 48 hrs. The message shall contain the following information:

- Aircraft concerned;
- Airport of departure and destination include relevant date of approval;
- Nature of malfunction(s);
- Measures taken;
- Special occurrences during flight.
- All records which were relevant for the decision shall be retained by the Engineering Department for two years and shall be available for presentation to the HKCAD on request.

8.7.5 Demonstration Flights

A demonstration flight may be for sales / advertising purposes or to demonstrate flight characteristics to a potential buyer, or flight with journalists and customers to introduce a new type of aircraft. All flights with passengers aboard require normal crew complement.

8.7.6 Positioning Flights

A positioning flight is a flight to position an aircraft to an airport for commercial or maintenance reasons. Positioning flights may be made with minimum crew. Employees of HKEA at all levels may be carried on positioning flights. Flight and cabin crew may be transported to or from flight duty (Dead Head Crew). When dead-head crew members are carried on positioning flights, at least one qualified cabin attendant must be carried.

8.8 Oxygen Requirements

Conditions under Which Oxygen Must be Provided and Used:

- Adequate breathing oxygen must be provided to the crew and passengers for sustenance in case of decompression, smoke or toxic gas emission.
- The Commander shall ensure that flight crew members engaged in performing duties essential to safe operation in flight use supplemental oxygen continuously whenever cabin altitude exceeds 10,000 ft.
- Additional “First Aid Oxygen” is required for passengers when the flight is planned to fly above 35,000 ft. This First Aid Oxygen must still be available after a decompression.
- Description and use of the aircraft oxygen systems and equipment are contained in the FCOM.

8.8.1 Oxygen Equipment And Supply Requirements

Each member of the flight crew on flight deck duty shall be supplied with supplemental oxygen in accordance with Table 1. If all occupants of flight deck seats are supplied from the flight crew source of oxygen then they shall be considered flight crew members on flight deck duty for the purposes of oxygen supply. All HKEA aircraft are fitted with quick donning oxygen masks.

Cabin attendants, additional crew and passengers shall be supplied with supplemental oxygen in accordance with Table 8-24. Cabin attendants carried in addition to the minimum required number of cabin crew shall be considered passengers for the purposes of oxygen supply. All HKEA aircraft comply with regulations regarding the number of oxygen outlets for aircraft intended to operate at pressure altitudes above 25,000 ft.

As the amount of oxygen required in accordance with Table 1 vary from route to route, depending on operating altitude and Minimum Safe Altitude, certain routing may not be operable, or may require the specification of escape procedures following decompression. The analysis of each route is conducted by the Operations Services section and any special procedures and requirements required for any routing are promulgated in the Route and Aerodrome Briefing Guide and in the Dispatch Release Message.

Table 8-24: Minimum Requirements for Supplemental Oxygen

Supply For	Duration and Cabin Pressure Altitude
All occupants of flight deck seats on flight deck duty	Whenever the cabin pressure altitude exceeds 10,000 ft, but in no case less than 2 hours for aircraft certified to fly at altitudes more than 25,000 ft. (b)
All required cabin attendants	Whenever the cabin pressure altitude is greater than 10,000 ft and a portable supply for 15 minutes.
100% of passengers (d)	Whenever the cabin pressure altitude exceeds 15,000 ft but in no case less than 10 minutes. (c)
30% of passengers (d)	Entire flight time when the cabin pressure altitude exceeds 12,000 ft but does not exceed 15,000 ft.
10% of passengers (d)	Entire flight time when cabin pressure altitude exceeds 10,000 ft but does not exceed 12,000 ft.

Note:

(a) The supply must take account of the cabin pressure altitude and descent profile for the route concerned.

(b) The required minimum supply is that quantity of oxygen necessary for a constant rate of descent from the aircraft's maximum certified operating altitude to 10,000 ft in 10 minutes and followed by 110 minutes at 10,000ft.

(c) The required minimum supply is that quantity of oxygen necessary for a descent from the aircraft's maximum certified operating altitude to 15,000 in 10 minutes.

(d) For the purposes of this table “passengers” means passengers actually carried and includes infants.

Note: *Supplemental Information: Time of Useful Consciousness*

The “Time of Useful Consciousness” is the time in which, from the occurrence of the oxygen deficiency, essential safely related tasks can still be performed effectively. The TUC reduces dramatically with increase in cabin altitude. The average TUC is shown in Table 8-25 below:

Table 8-25: Average TUC

Time of Useful Consciousness	
Altitude (ft)	Elapse Time
22,000	approximately 5 minutes
25,000	2 min
28,000	1 min
30,000	35 sec
35,000	20 sec
40,000	12 sec

8.8.2 Demonstration Of The Use Of Oxygen For The Passengers

To be prepared for the case of a decompression, the passengers must be familiarized with the use of the oxygen supply system, if

- the cruising altitude is above 25.000 ft.;
- if the MEA to be maintained in view of the obstacle situation after an emergency descent is 15,000 ft. or higher (e.g. in high terrain).
- In any seat row, the number of passengers must not exceed the number of functioning oxygen masks.
- If a person not in possession of a licence for the respective aircraft type, is flying on a vacant crew seat, a familiarization with the oxygen system must be given irrespective of flight altitude and MEA.

8.8.3 Replenishment Of Aircraft Oxygen Systems

During the replenishment of an aircraft's oxygen systems the following activities and circumstances are prohibited:

- Passengers remaining on board;
- Loading and onboard service works inside a radius of 15 metres from the filling connection (except work inside the cabin);
- Vehicle traffic inside a radius of 15 metres from the filling connection;
- Removal and connection of ground power generating sets;
- Activation of Galley-power. (must be disconnected prior to replenishment);
- Activation of electrical switches;
- Refuelling or defuelling;
- Smoking;
- Radio communication, in particular HF.

Note: *The flight crew must inform the cabin crew prior to the commencement of the replenishment process.*

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Chapter 9 – Dangerous Goods & Weapons

9.1 Information and General Guidance on the Transport of Dangerous Goods

- Transportation of Dangerous Goods (DG) as cargo is not permitted on HKEA aircraft.
- The rules applying to the transportation of DG items by passengers or crew are described below.
- The procedure depicted in section 9 is for information and reference only. Current version of IATA Dangerous Goods Regulations shall be referred for detailed handing procedure.

9.2 Transport of Dangerous Goods by Passengers and / or Crew

Certain articles (or materials) are capable of posing a significant risk to health, safety or property when transported by air, and are defined as dangerous goods. The carriage of such articles (or materials) is therefore regulated.

Rules concerning the safe transport of dangerous goods are defined by ICAO in Annex 18 of the Chicago Convention and in the 'Technical Instructions for the safe transport of dangerous goods by air' (DOC9284 AN/905, hereafter referred to as 'Technical Instructions').

In addition, IATA has established the manual 'Dangerous Goods Regulations' with respect to the ICAO rules, which defines ICAO procedures and instructions for the transport of dangerous goods. It should also be noted that the countries of departure, of destination and of the carrier may impose their own national regulations.

The IATA 'Dangerous Goods Regulations' specify:

- What is permitted to be carried.
- Responsibility of the shipper and the carrier.
- Under which conditions shipment shall be conducted.

In principle, dangerous goods shall not be transported by passengers or crew members as checked baggage in the cargo compartment, or as carry-on baggage, or on their person.

9.2.1 Dangerous Goods Forbidden to be Carried by Crew or Passengers

These are defined in IATA Dangerous Goods Regulations, section 2, Table 2.3A. Table 2.3A can be found in Appendix 9-1.

9.2.2 Dangerous Goods Allowed to be Carried by Crew or Passengers

These are defined in IATA Dangerous Goods Regulations, section 2, Table 2.3A. Table 2.3A can be found in Appendix 9-1.

9.2.3 Dangerous Goods That Requires Approval From HKEA

These are defined in IATA Dangerous Goods Regulations, section 2, Table 2.3A. Table 2.3A can be found in Appendix 9-1.

9.2.4 Dangerous Goods That Requires Notification to Pilot-in-command

These are defined in IATA Dangerous Goods Regulations, section 2, Table 2.3A. Table 2.3A can be found in Appendix 9-1.

9.2.5 Managing IATA and ICAO required publications

The Manager, Operations (Library) will coordinate with IATA and ICAO on matters concerning the latest edition of required publications and shall ensure the appropriate time to procure, procurement should be completed two months before the end of every year.

9.3 Dangerous Goods Awareness Training

To ensure awareness and vigilance on dangerous goods are maintained at all time, all Company staff, including Flight/Cabin Crew, FOCC personnel and ground services (in HKG and out-stations) personnel, involve in operational control and handling baggage/cargo are required to go through an initial Dangerous Goods Awareness Training which will cover the following areas:

- The responsibility of the operator (General Philosophy in IATA DG Training Programme - Book 2)
- Dangerous Goods Strictly Forbidden for Air Transport (IATA Dangerous Goods Training Programme - Book 2 (DGTP) Unit 1 and IATA Dangerous Goods Regulation (DGR) 2.1)
- Procedures to follow if a dangerous goods incident occurs on an aircraft (DGTP Unit 9)
- Exceptions set out in IATA Regulations for Dangerous Goods carried on an aircraft (DGTP Unit 1 and DGR 2.3)
- Procedure for accepting allowed Dangerous Goods
  - -Sport weapons as baggage
  - -Wheelchair batteries
  - -Dry ice

  (DGTP Unit 1 Table 2.3 A)

Recurrent training must take place within 24 months of previous training to ensure knowledge is current.

Training record will be kept in his/her personal training file.

9.4 Procedures for Reporting Dangerous Goods Incidents

Commander of an aircraft carrying dangerous goods must;

In the event of an in-flight emergency and as soon as the situation permits, inform the appropriate Air Traffic Control (ATC) unit of those dangerous goods in accordance with paragraph 4.3 of Part 7 of the Technical Instructions.

The information is, as appropriate to the occurrence;

(a) The date of the occurrence;

(b) The location of the occurrence, the flight number and the flight date;

(c) A description of the dangerous goods involved and the reference number of the air waybill, pouch, baggage tag and ticket;

(d) In relation to the dangerous goods involved, as each is allocated by Table 3-1 in Chapter 2 of Part 3 of the Technical Instructions -

  (i) The proper shipping name (including the technical name, if applicable),

  (ii) The ID number or UN number,

  (iii) The Class or Division, and

  (iv) The subsidiary risk or risks if any;

(e) The type of packaging and the packaging specification marking;

(f) The quantity of dangerous goods;

(g) The name and address of the shipper or passenger;

(h) The suspected cause of the occurrence;

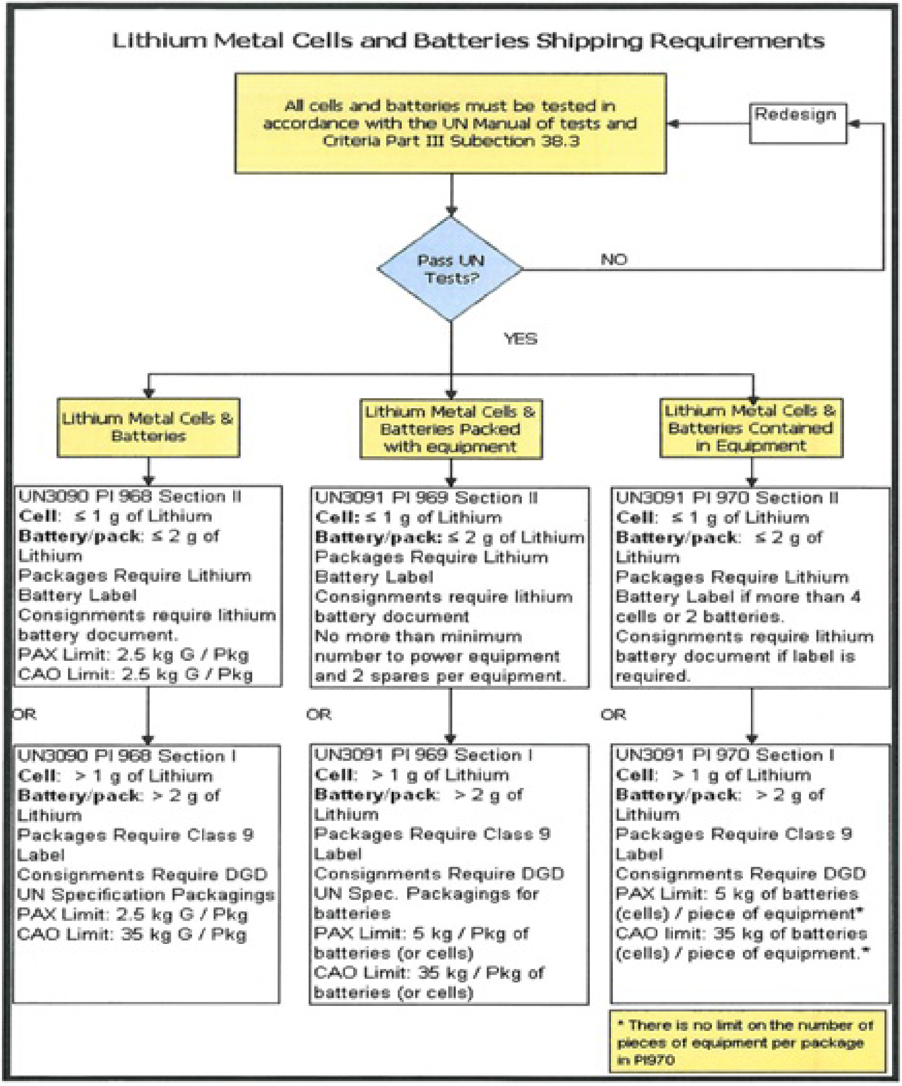
(i) Any action taken;

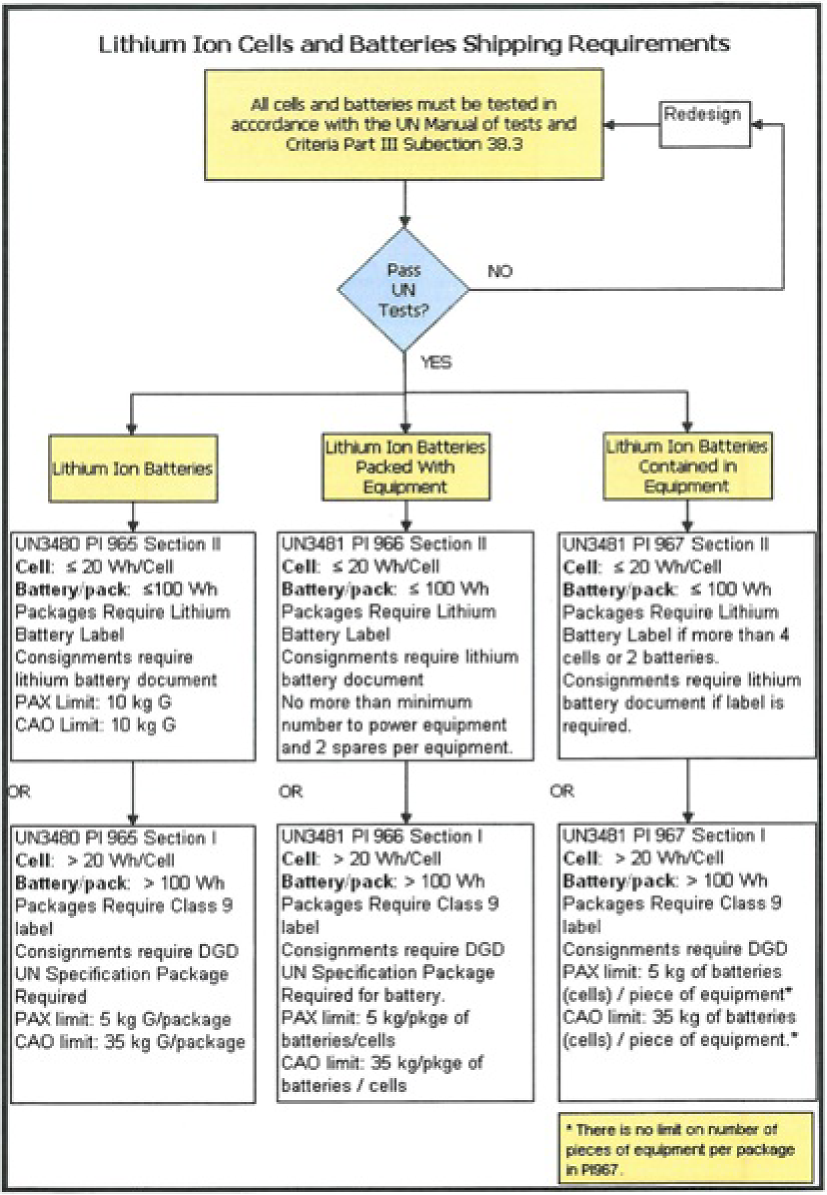
(j) Any other reporting action taken;

(k) The name, title, address and contact number of the reporter; and

(l) Any other relevant details.

9.5 Lithium Metal Cells And Batteries Shipping Requirements




Lithium Ion Cells and Batteries Shipping Requirements
All cells and batteries must be tested in accordance with the UN Manual of tests and Criteria Part III Subection 38.3
Redesign
Pass UN Tests?
NO
YES
Lithium Ion Batteries
Lithium Ion Batteries Packed With Equipment
Lithium Ion Batteries Contained in Equipment
UN3480 PI 965 Section II
Cell: ≤ 20 Wh/Cell
Battery/pack: ≤100 Wh
Packages Require Lithium Battery Label
Consignments require lithium battery document
PAX Limit: 10 kg G
CAO Limit: 10 kg G
UN3481 PI 966 Section II
Cell: ≤ 20 Wh/Cell
Battery/pack: ≤ 100 Wh
Packages Require Lithium Battery Label
Consignments require lithium battery document
No more than minimum number to power equipment and 2 spares per equipment.
UN3481 PI 967 Section II
Cell: ≤ 20 Wh/Cell
Battery/pack: ≤ 100 Wh
Packages Require Lithium Battery Label if more than 4 cells or 2 batteries.
Consignments require lithium battery document if label is required.
OR
OR
OR
UN3480 PI 965 Section I
Cell: > 20 Wh/Cell
Battery/pack: > 100 Wh
Packages Require Class 9 label
Consignments require DGD
UN Specification Package Required
PAX limit: 5 kg G/package
CAO limit: 35 kg G/package
UN3481 PI 966 Section I
Cell: > 20 Wh/Cell
Battery/pack: > 100 Wh
Packages Require Class 9 label
Consignments require DGD
UN Specification Package Required for battery.
PAX limit: 5 kg/pkge of batteries/cells
CAO limit: 35 kg/pkge of batteries / cells
UN3481 PI 967 Section I
Cell: > 20 Wh/Cell
Battery/pack: > 100 Wh
Packages Require Class 9 label
Consignments require DGD
PAX limit: 5 kg of batteries (cells) / piece of equipment*
CAO limit: 35 kg of batteries (cells) / piece of equipment.*
* There is no limit on number of pieces of equipment per package in PI967.

Appendix 9-1 IATA Dangerous Goods Regulations 2018

Table 2.3 A Provisions for Dangerous Goods Carried by Passengers or Crew

Table 2.3.A Provisions for Dangerous Goods Carried by Passengers or Crew (Subsection 2.3)

Dangerous goods must not be carried in or as passengers or crew, checked or carry-on baggage, except as otherwise provided below. Dangerous goods permitted in carry-on baggage are also permitted "on one's person", except where specified otherwise.

	The approval of the operator is required	Permitted in or as checked baggage	Permitted in or as carry-on baggage	The pilot-in-command must be informed of the location
Alcoholic beverages, when in retail packagings, containing more than 24% but not more than 70% alcohol by volume, in receptacles not exceeding 5 L, with a total net quantity per person of 5 L.	NO	YES	YES	NO
Ammunition (cartridges for weapons), securely packaged (in Div. 1.4S, UN 0012 or UN 0014 only), in quantities not exceeding 5 kg gross weight per person for that person's own use. Allowances for more than one person must not be combined into one or more packages.	YES	YES	NO	NO
Avalanche rescue backpack, one (1) per person, containing a cartridge of compressed gas in Div. 2.2. May also be equipped with a pyrotechnic trigger mechanism containing not more than 200 mg net of Div. 1.4S. The backpack must be packed in such a manner that it cannot be accidentally activated. The airbags within the backpacks must be fitted with pressure relief valves.	YES	YES	YES	NO
Batteries, spare/loose, including lithium metal or lithium ion cells or batteries, for portable electronic devices must be carried in carry-on baggage only. These batteries must be individually protected to prevent short circuits.	NO	NO	YES	NO
Camping stoves and fuel containers that have contained a flammable liquid fuel, with empty fuel tank and/or fuel container (see 2.3.2.5 for details).	YES	YES	NO	NO
Chemical Agent Monitoring Equipment, when carried by staff members of the Organization for the Prohibition of Chemical Weapons on official travel (see 2.3.4.4).	YES	YES	YES	NO
Disabling devices such as mace, pepper spray, etc. containing an irritant or incapacitating substance are forbidden on the person, in checked and carry-on baggage.	FORBIDDEN			
Dry ice (carbon dioxide, solid), in quantities not exceeding 2.5 kg per person when used to pack perishables not subject to these Regulations in checked or carry-on baggage provided the baggage (package) permits the release of carbon dioxide gas. Checked baggage must be marked "dry ice" or "carbon dioxide, solid" and with the net weight of dry ice or an indication that there is 2.5 kg or less dry ice.	YES	YES	YES	NO
e-cigarettes (including e-cigars, e-pipes, other personal vaporizers), must be individually protected to prevent accidental activation.	NO	NO	YES	NO
Electro shock weapons (e.g. Tasers) containing dangerous goods such as explosives, compressed gases, lithium batteries, etc. are forbidden in carry-on baggage or checked baggage or on the person.	FORBIDDEN			
Fuel cells containing fuel, powering portable electronic devices (e.g. cameras, cellular phones, laptop computers and camcorders), see 2.3.5.10 for details.	NO	NO	YES	NO
Fuel cell cartridges, spare for portable electronic devices, see 2.3.5.10 for details.	NO	YES	YES	NO
Gas cartridges, small, non-flammable containing carbon dioxide or other suitable gas in Division 2.2. Up to two (2) small cartridges fitted into a **self-inflating safety device** such as a life jacket or vest. Not more than one (1) device per passenger and up to two (2) spare small cartridges per person, not more than four (4) cartridges up to 50 mL water capacity for other devices. (see 2.3.4.2)	YES	YES	YES	NO
Gas cylinders, non-flammable, non-toxic worn for the **operation of mechanical limbs**. Also, spare cylinders of a similar size if required to ensure an adequate supply for the duration of the journey.	NO	YES	YES	NO
Hair curlers containing hydrocarbon gas, up to one (1) per passenger or crew-member, provided that the safety cover is securely fitted over the heating element. These hair curlers must not be used on board the aircraft at any time. Gas refills for such curlers are not permitted in checked or carry-on baggage.	NO	YES	YES	NO
Heat producing articles such as underwater torches (diving lamps) and soldering irons. (See 2.3.4.6 for details.)	NO	YES	YES	NO
Insulated packagings containing refrigerated liquid nitrogen (dry shipper), fully absorbed in a porous material containing only non-dangerous goods.	NO	YES	YES	NO
Internal combustion or fuel cell engines, must meet A70 (see 2.3.5.15 for details).	NO	YES	NO	NO
Lamps, energy efficient when in retail packaging intended for personal or home use.	NO	YES	YES	NO
Lithium Batteries: Security-type equipment containing lithium batteries (see 2.3.2.6 for details).	YES	YES	NO	NO

Item	The approval of the operator is required	Permitted in or as checked baggage	Permitted in or as carry-on baggage	The pilot-in-command must be informed of the location
Lithium Batteries: Portable electronic devices containing lithium metal or lithium ion cells or batteries, including medical devices such as portable oxygen concentrators (POC) and consumer electronics such as cameras, mobile phones, laptops and tablets, when carried by passengers or crew for personal use (see 2.3.5.9). For lithium metal batteries the lithium metal content must not exceed 2 g and for lithium ion batteries the Watt-hour rating must not exceed 100 Wh. Devices in checked baggage must be completely switched off and must be protected from damage.	NO	YES	YES	NO
Lithium batteries, spare/loose with a Watt-hour rating exceeding 100 Wh but not exceeding 160 Wh for consumer electronic devices and Portable Medical Electronic Devices (PMED) or with a lithium content of 2 g but not exceeding 8 g for PMED only. Maximum of two spare batteries may be carried in carry-on baggage only. These batteries must be individually protected to prevent short circuits.	YES	NO	YES	NO
Lithium battery-powered electronic devices. Lithium ion batteries for portable (including medical) electronic devices, a Wh rating exceeding 100 Wh but not exceeding 160 Wh. For portable medical electronic devices only, lithium metal batteries with a lithium content exceeding 2 g but not exceeding 8 g. Devices in checked baggage must be completely switched off and must be protected from damage. Devices in checked baggage must be completely switched off and must be protected from damage.	YES	YES	YES	NO
Matches, safety (one small packet) or a small cigarette lighter that does not contain unabsorbed liquid fuel, other than liquefied gas, intended for use by an individual when carried on the person. Lighter fuel and lighter refills are not permitted on one's person or in checked or carry-on baggage. ***Note**:"Strike anywhere" matches, "Blue flame" or "Cigar" lighters are forbidden.*	NO	ON ONE'S PERSON		NO
Mobility Aids: Battery-powered wheelchairs or other similar mobility devices with **non-spillable wet batteries or with batteries which comply with Special Provision A123 or A199**, (see 2.3.2.2).	YES	YES	NO	NO
Mobility Aids: Battery-powered wheelchairs or other similar mobility devices with **spillable batteries or with lithium batteries** (see 2.3.2.3 and 2.3.2.4 for details).	YES	YES	NO	YES
Mobility Aids: Battery-powered mobility aids with **lithium ion batteries (collapsible)**, lithium-ion battery must be removed and carried in the cabin (see 2.3.2.4(d) for details).	YES	NO	YES	YES
Non-radioactive medicinal or toiletry articles (including aerosols) such as hair sprays, perfumes, colognes and medicines containing alcohol; and	NO	YES	YES	NO
Non-flammable, non-toxic aerosols in Division 2.2, with no subsidiary risk, for sporting or home use. The total net quantity of non-radioactive medicinal or toiletry articles and non-flammable, non-toxic aerosols in Division 2.2 must not exceed 2 kg or 2 L and the net quantity of each single article must not exceed 0.5 kg or 0.5 L. Release valves on aerosols must be protected by a cap or other suitable means to prevent inadvertent release of the contents.	NO	YES	NO	NO
Oxygen or air, gaseous, cylinders required for **medical use**. The cylinder must not exceed 5 kg gross weight. ***Note:** Liquid oxygen systems are forbidden for transport.*	YES	YES	YES	YES
Permeation devices, must meet A41 (see 2.3.5.16 for details).	NO	YES	NO	NO
Portable electronic devices containing non-spillable batteries, batteries must meet A67 and must be 12 V or less and 100 Wh or less. A maximum of 2 spare batteries may be carried (see 2.3.5.13 for details).	NO	YES	YES	NO
Radioisotopic cardiac pacemakers or other devices, including those powered by lithium batteries, implanted into a person or fitted externally, or radiopharmaceuticals contained within the body of a person as the result of medical treatment.	NO	ON ONE'S PERSON		NO
Security-type attaché cases, cash boxes, cash bags, etc. incorporating dangerous goods, such as lithium batteries and/or pyrotechnic material, except as provided in 2.3.2.6 are totally forbidden. See entry in 4.2 - List of Dangerous Goods.	FORBIDDEN			
Specimens, non-infectious packed with small quantities of flammable liquid, must meet A180 (see 2.3.5.14 for details).	NO	YES	YES	NO
Thermometer, medical or clinical, which contains mercury, one (1) per person for personal use, when in its protective case.	NO	YES	NO	NO
Thermometer or barometer, mercury filled carried by a representative of a government weather bureau or similar official agency (see 2.3.3.1 for details.)	YES	NO	YES	YES

Note: The provisions of 2.3 and Table 2.3.A may be limited by State or operator variations. Passengers should check with their airline for the current provisions.

Chapter 10 – Aviation Security

10.1 Security Instructions And Guidance

10.1.1 Company Policy

Company operational security procedures are based on the sterile area concept. This requires screening of all passengers and hand baggage for weapons and explosives either before they enter the departure lounge or, where departure lounges are not considered secure, before they board the aircraft.

Crew members should exercise continual vigilance regarding security procedures and should report any irregularities to the Commander or Senior Cabin Crew Members.

Crew Members are advised that all Company operational information and publications such as Crew Rosters, etc, are strictly confidential and should not be divulged to non-Company persons.

10.1.2 Crew Requirements

10.1.2.1 Identification Cards

Each Crew Members must wear the HKEA Crew Member's Certificate (CMC) issued for the duration of his duty and the CMC is to be worn in a visible position.

The CMC must not be lent or disposed of in any manner. If the CMC is lost, it must be immediately reported to Flight Standards Manager or Manager, Cabin Crew Standards &Performance, as appropriate, and notify Head of Quality, Safety & Security for arranging the replacement of CMC. If a CMC is lost, a police report must also be filed before CMC can be re-issued to the cardholder.

10.1.2.2 Crew Baggage Security

Crew members are responsible for the security of their own baggage. Crew baggage must not be left unattended in public places e.g. hotel lobbies and airport check-in areas.

All hold baggage belonging to crew members should be locked before loading. It should bear a Company crew baggage label with the crew member's name, flight number, date and destination clearly printed on it. If there is an overnight stop en-route, crew members must ensure that the crew baggage tag is clearly labeled with the correct destination before embarking on the next leg of the trip.

At any outport, all crew are to ensure that their cabin baggage and suitcases are locked and left in the hotel room until departure.

No crew member will take sealed parcels or gifts on board the aircraft without the permission of the Commander. Last minute 'gifts' or purchases such as food, cakes and fruit which are delivered to the aircraft are not to be accepted.

Crew members will not bring with them on a flight, baggage or sealed gifts on behalf of a third party. Apart from legal and commercial implications such items might have been used to conceal weapons and narcotics without the crew member being aware of the fact. Contravention of this regulation will render a crew member liable to dismissal and prosecuted by the local authority.

Cabin Crew shall take all necessary measures to protect their personal property in-flight.

All crew members should:

(1) Keep bags locked when not in use.

(2) Maintain security of all carry-on bags.

(3) When packing bags, make sure all items belong to you and have not been tampered with.

(4) Keep bags in view at all times in public areas such as lobbies, boarding lounges, restaurant, restrooms, hotels or terminal buildings.

(5) Do not accept anything for carriage, including letters or envelopes, given by strangers, fellow employees or acquaintances.

(6) If crew member suspect the bags has been tampered with, Captain is to be notified and the baggage is checked for any addition or missing item.

10.1.2.3 Security Check Of Aircraft

Before departure from an originating station, the aircraft will be searched by flight crew and cabin crew after all cleaners, caterers and ground engineers have left the aircraft. Seats, areas under the seats, seat pockets, overhead lockers, cloakrooms, lavatories and galley areas are included. Particular emphasis should be given to searching the toilet compartments. (Refer to 10.2.1 – Appendix I - Aircraft Search Checklist as a guide).

The Senior Cabin Crew Member should ensure that all security checks are completed and both the Commander and ground staff informed so that passenger boarding may commence. Searches will also be necessary at route stations, when aircraft are brought into service following maintenance or after a 'night stop'.

As a general rule the security checks should include:

(1) an inspection of the exterior of the aircraft, paying particular attention to wheel bays and technical areas;

(2) a comprehensive inspection of the interior of the aircraft, including the passenger cabin area, seats, overhead lockers, cloakrooms, lavatories, galleys and other technical areas such as the flight deck.The primary responsibility for checking lavatories, galleys and the passenger cabin rests with the Cabin Crew and the responsibility for checking the flight deck area rests with the Flight Crew.

If during the search any objects are found which give reason for suspicion, e.g. nonstandard equipment or toiletries, unusual wiring, 'mislaid' cabin baggage, parcels, cameras etc, make no attempt to touch them but inform the Commander immediately. During transit stops all Crew should be observant to the following:

- At stations where transit passengers or cabin baggage are permitted to remain on board, the crew search of the cabin overhead lockers and cloak rooms are not normally required, but a pre-departure check of the cockpit, galleys and lavatories should be carried out.
- When a situation requires, passengers will be asked to retrieve and identify all their cabin baggage and personal belongings. Cabin Crew will pass through the aircraft to ensure there are no items of baggage

remaining which are unidentified. Any unclaimed items will be off loaded from the aircraft.

- When flights under an increased threat, Cabin Crew must ensure that disembarking passengers do not leave any items on board the aircraft at transit stop.
- Access to the aircraft is restricted to Authorized staff.
- All overhead lockers shall remain closed during transit.

10.1.2.4 Contingency Plan To Response To Increased Threat / High Risk Flights

The Commissioner of Police (Assistant Commissioner of Police, Security Wing) is responsible for collecting and assessing threat information on a continuous basis and for advising the Aviation Security Authority on the assessed threat to civil aviation in Hong Kong. If the aircraft is under a specific threat or warning to increased threat, security measures as stipulated under the Civil Aviation Risk Management Plan (CARMP) from CAD as per section 10.9.2, Appendix II shall be followed.

The CARMP has adopted the 6-level threat system implemented by the Police which, as stipulated under the Hong Kong Aviation Security Program, is responsible for threat assessment.The security measures when threat level is “Negligible” form the baseline responses on which more stringent security measures are built upon. Tighter security measures are proposed for implementation at the centralized screening checkpoints prior to entering the sterilized area to meet raised threat. Further enhancement of security responses is then adopted at departure gates to meet specific threat for high risk flights.

10.1.2.5 Catering

Catering containers must be subjected to security check by the galley purser(s) prior to departure. Containers that cannot be opened for checking (e.g. lock unserviceable etc) must be reported to the Senior Cabin Crew Member.

At transit ports, if there is no crew change, Cabin Crew will be responsible for checking all joining catering. However, where a crew change is involved, security checks will be required as for originating ports.

Last minute catering uplifts should be checked by Cabin Crew before departure.

10.1.3 Non-Normal Security Procedures

10.1.3.1 Unruly & Disruptive Passengers

Background: The HK SAR Government, in line with ICAO recommendations, has amended the Aviation Security Ordinance to impose criminal sanctions against unruly or disruptive behaviour committed by passengers on board civil aircraft.

Applicability: The amended ordinance applies to offences committed on board Hong Kong registered aircraft whether committed inside or outside Hong Kong.

Criminal acts and offences falling under the general description of assault, intimidation, sexual assault and child molestation are already offences when committed on a Hong Kong registered aircraft, irrespective of where the offence was committed.

Seven other specific behaviours have now been specified as offences. They are:

- Obstruction of crew members whilst performing their duties
- Failure to comply with instructions given by crew members
- Disorderly behaviour
- Tampering or interfering with aircraft components, apparatus or systems
- Intoxication by alcohol, drugs or other substances
- Smoking in the aircraft when it is prohibited
- Operating electronic devices in the aircraft when it is prohibited

Separate provisions are specified for non Hong Kong registered aircraft.

Categorizing of Disruptive Events On Board Aircraft (ICAO - Doc 9811- Chapter 4)

Passenger situations will be graded in one of four levels that have been designed to give a clear and concise way of communicating to the Flight Crew the nature and extent of the situation in the cabin.

- Level 1 - Disruptive Behaviour

  his can include irrational or disorderly behaviour involving alcohol or drugs, abusive language and defiant actions such as non-compliance with crew commands. Flight Crew must be informed and the Flight Deck door should not be opened until the Cabin Crew had fully controlled the situation.
- Level 2 - Physically Abusive Behaviour

  This can include pushing, grabbing, hitting or kicking crew members or other passengers. It includes damage to aircraft equipment or damage to others personal property. Flight Crew must be informed and a diversion and landing should be considered. Flight Crew must be informed and the Flight Deck door should not be opened until the Cabin Crew fully controlled the situation.
- Level 3 - Life-threatening Behaviour

  The involvement of a weapon in any passenger disturbance immediately increases the level of threat. Where there is a threat of concealed weapon, Cabin Crew A should attempt by peaceful means to confirm the presence of such weapons. When a person's behaviour deliberately threatens life with or without a weapon, then it should be assumed that the action may escalate into an attempted hijack. Weapons include guns, bladed or pointed articles, clubs, wires, cords etc.

  Flight Crew must be informed and the Flight Deck door should not be opened for the remainder of the flight. The Flight Crew should declare an emergency and activate the transponder and commence a diversion and emergency landing.
- Level 4 - Attempted Breach or Actual Breach of the Flight Deck

  This is the highest level of threat whether intended, threatened or achieved. It is possible that due to security enhancements on company aircraft that hijacker might concentrate on violence or threat of violence against Cabin Crew or passengers in order to gain access to the Flight Deck, rather than a direct attempt. The purpose of such action is undoubtedly to gain control of the aircraft.

The Flight Deck door should not be opened for the remainder of the flight. The Flight Crew should declare an emergency and activate the transponder and commence a diversion and emergency landing.

10.1.3.2 Airport Handling

Airport staff will prevent the boarding of any passengers or group of passengers whose behaviour displays the above characteristics.

Cabin crew observing disorderly conduct during embarkation, in accordance with the above characteristics, will immediately advise the appropriate airport staff and the Commander. If necessary, the offending passenger(s) is to be disembarked. Assistance from airport police or security staff should be enlisted, if required.

10.1.3.3 In-Flight

Cabin Crew is to serve a warning to the passenger(s) concern as soon disruptive / unruly behaviour observed.

If assistance is required from the Police Force, the Hong Kong Police should be notified for assistance PRIOR to the next landing in Hong Kong when such an incident occurs. The Commander is to use whatever is the most efficient means of communication with FOCC requesting the police to meet the flight, and stating the nature of the incident. This may be via ACARS or via Company frequency as indicated on the port page.

Crew Members on board the aircraft are to collect and record as much information as possible pertaining to the incident, including the allocated seat number and name of the alleged perpetrator, and names and contact details of any witnesses.

10.1.3.4 After Landing

In case of a serious incident with disorderly passenger(s), the Commander will request airport police, or security staff, to meet the aircraft on arrival and, if necessary, charge the passenger(s) with an offence.

10.1.3.5 Reporting Procedure

HKEA is required to report incidents of unruly or disruptive behaviour to the Director General of Civil Aviation as soon as reasonably possible. The DO, or his nominated stand-in will submit this report.

HKEA requires any such incident to be reported, in writing, by the Commander to both Flight Operations and In-flight Services Management as soon as possible. It is probable that an MOR will also be required. If assistance has been given or action taken by any other state authority outside Hong Kong this must be included in the Commander's report.

10.1.4 Bomb Or Sabotage Threats

10.1.4.1 Security Instructions And Guidance

General

It is important that all staff develop a “security conscious” approach with respect to company aircraft and other assets. All crew members should be vigilant in ensuring that un-Authorized persons are denied access to aircraft and areas where there is the potential for sabotage or damage.

10.1.4.2 Bomb And Other Sabotage Threats

Threats against an aircraft or a particular flight number are usually received by the local Civil Aviation Authority, Company or handling agent / airline office. Bomb threat calls will be evaluated, by appropriate personnel, as either positive or negative.

It is company policy that appropriate procedures be implemented immediately for bomb threats assessed as genuine until it is assessed that the threat is in fact a hoax, or does not present any further danger. Threats which may involve a number of flights, carriers, or other vague information, indicating a high probability of the threat being a hoax, would normally requires no action.

The treatment of bomb or sabotage threats varies from country to country both with respect to the handling of the aircraft after landing and in the subsequent investigation of the threat by local authorities.

The Commander of the aircraft will be advised of the receipt of any genuine threat against the aircraft. The situation is to be treated as an emergency in accordance with the following.

10.1.4.3 Aircraft Is On The Ground

- Summon Senior Cabin Crew Member to the cockpit and advise the natureof the threat against the aircraft; make the following PA announcement

  "Ladies and gentlemen this is Captain.....speaking. I regret to advise that there will be an interruption to this flight. We have received a message that an explosive material may have been loaded on to the aircraft. In the interest of your safety we are going to make a thorough search of theaircraft. Instead of taking off, we shall taxi the aircraft to a suitable area. The cabin crew will supervise your disembarkation and accompany you to a safe location. Arrangements for your comfort while the aircraft is being searched will be advised after disembarkation";
- Disembark the passengers either at the gate or at a suitable area nominated by ATC. If the aircraft is away from the gate, disembarkation is to be via stairs rather than escape slides, unless there is a reason to believe that an explosion and / or aircraft damage is imminent.
- In a controlled disembarkation via stairs or an airbridge, passengers and crew should take all cabin baggage; this requirement should be reflected in a PA announcement by the Senior Cabin crew Member;
- If an evacuation via the slides is required, passengers and crew should leave all cabin baggage on board the aircraft;
- Cabin Crew and ground personnel will be responsible for moving the passengers to a safe location.

10.1.4.4 Aircraft Is In Flight

- If terrain permits, descend until cabin differential pressure is zero - then maintain that altitude. Maintaining a constant cabin pressure should prevent activation of any barometric trigger, at least until other preventive measures have been taken. If terrain precludes complete descent, descend as low as prudent until such time as it becomes possible. In the event the device explodes, the lower the cabin differential pressure, the better the chance of averting catastrophe.

- Immediately proceed to the nearest suitable airport;
- Summon the Senior Cabin Crew Member to the cockpit and advise the nature of the threat against the aircraft; make the following PA announcement:

  Ladies and gentlemen this is Captain.....speaking. We have been advised by Air Traffic Control that the safety of the aircraft may have been compromised. In the interests of your safety we are returning to.....airport (or diverting to.....airport) and I will give you more details after landing";
- After landing make the following PA announcement;

  "Ladies and gentlemen this is Captain......speaking. I regret to advise that we have received a security threat against the flight. In the interest of your safety we are going to make a thorough search of the aircraft. The cabin crew will supervise your disembarkation and accompany you to a safe location"
- If an immediate evacuation appears warranted, order an emergency evacuation immediately after the aircraft has been brought to a stop after landing;
- In the event that an immediate evacuation is not considered necessary, disembark the passengers either at a gate or at a suitable area nominated by ATC. If the aircraft is away from the gate, disembarkation is to be via stairs rather than escape slides, unless there is a reason to believe that an explosion and / or aircraft damage is imminent.
- In a controlled disembarkation via stairs or an airbridge, passengers and crew should take all cabin baggage; this requirement should be reflected in a PA announcement by the Senior Cabin crew Member;
- If an evacuation via the slides is required, passengers and crew should leave all cabin baggage on board the aircraft;
- Cabin Crew and ground personnel will be responsible for moving passengers to a safe location.

10.1.5 Located Bomb On Board

10.1.5.1 In-Flight Bomb Search

Should the Commander require a bomb search, the following guidelines can be used:

- All lavatories are to be checked and locked. Move passengers two rows at a time and ask them to identify their baggage. To speed up the process, the search can be conducted on both ends of the cabin. Other passengers are to remain seated.
- If a suspicious item is discovered, move passengers away from the immediate area. Do not move or touch the item, inform the Commander.
- Continue the search as there may be more than one device.

10.1.5.2 Actions On Finding A Suspicious Object

The Commander may descend to equalize the pressure between the cabin and outside. All non-essential electrical power is to be turned off.

Remember to keep calm or else you will start a panic. Do not move anything that appears suspicious and secure it in the attitude found. Use pillows, blankets and soft baggage to cover and secure the suspicious object. Move passengers at least 4 seat rows away if possible. If these seats are full then passengers may sit on the floor in safer areas. Passengers closer to the object should protect their heads with pillows and blankets and sit in the brace position; all passengers should remain seated and keep their heads below the level of the seat backs.

On the ground, use the exit furthest from the object. If the slides are used, the crew should follow evacuation procedures.

10.1.5.3 Guidelines For Relocating Suspicious Items

According to experience, explosives brought on board aircraft are fitted with time or altitude fuses. If considered absolutely necessary, the Commander may have the item moved to the area of Least Risk Bomb Location (LRBL).

- LRBL for A320-200

  The LRBL for A320-200 is the R2 Door. The ideal position of the item is against the door approximately 25 cm below the middle of the door.

- Preparation of the LRBL:

  The sitting of the LRBL is designed to minimize the damage to the aircraft in the event of an item exploding. Where possible, move passengers away from the area, instruct them to sit with their heads below the tops of seat backs. Place door in Disarmed. Remove oxygen bottles and other equipment that may enhance the explosion. The device will need to be secured in position at the LRBL.

- Moving the device and building the LRBL:

  The route from the item to the LRBL must be clear of all obstructions. Great care should be taken when moving a suspicious item in case an anti-handling device is present. It must be kept in the same attitude in which it was found.

- At the LRBL the item should be secured in position and covered with a polythene bag to provide a waterproof membrane. Where possible the device should be placed on a secure platform which can be built with hand luggage, a box packed with soft material.

Note: *Soft dry packing materials such seat cushions should be packed around the item. Dampened soft items, to minimize fire risk in the event of an explosion, may then be placed around the item. As much soft materials as available should be used. If available, blankets should be wet and placed opened out on top of the LRBL.*

10.1.5.4 Company Assessment Team & Crisis Centre

Bomb threat warning messages are to be assessed by the Company Assessment Team according to the Bomb Warning Assessment Form in section 16 Appendix 2 of the Security Manual, before taking any initial action. Director, Operations (DO) will determine whether it is necessary to activate the Crisis Centre to handle the crisis. The Company Assessment Team shall normally consist of the following members:

- Director, Operations (DO)

- General Manager Flying (GMF)
- General Manager, Maintenance and Engineering (GMME)
- General Manager, Cabin Services (GMCS)
- Director, Quality, Safety and Security (DQSS)
- General Manager, Operations Control (GMOC)

Note: *If the warning concerns a HKEA aircraft either on the ground or about to land at Hong Kong International Airport, the assessment and resolution of the incident will involve the Airport Authority (AVSECO) and Police.*

(1) A Bomb Threat Assessment Group will be set up at the Airport Emergency Centre immediately with the representatives from HKEA, Police and Airport Authority (AVSECO) to assess the situation and determine actions to be taken by the Authority.

(2) HKEA Security personnel will attend the Bomb Threat Assessment Group meeting. If they are not available, GHA Duty Manager will attend the meeting on their behalf. Whoever attends the meeting shall liaise closely with HKEA Crisis Centre during the assessment process.

10.1.5.5 Classification Of Bomb Warning Message

All warnings will be treated as RED/AMBER (POSITIVE) until the Company Assessment Team has made an assessment and instructed otherwise.

Red/Amber (positive). Some or all of the following factors are present:

- The individual giving the warning identifies himself/herself.
- Aircraft registration/Flight number specified.
- The exact date and/or time are stated.
- The airline is specified.
- Type of aircraft identified.
- The origin and/or destination of the flight are given.
- Location of the aircraft given.
- Exact location of the device is specified.
- Detailed description of the device.
- Specified description of bag or place of concealment.
- Named passenger, or named crew.
- Terrorist or other organisation named.
- Extortion or political demand made.
- Industry type terms used.
- Other information offered indicating unique knowledge.

Note: *Code Letter "X" will be added to indicate an extortion threat.*

10.1.5.6 Green Warning (Negative)

Some or all of the following factors are present:

- The person giving the warning does not identify himself/herself.
- The airline is not specified.
- The flight or facility is not specified.

- The information is general in nature, e.g. “the next flight leaving the airport has a bomb”, or “there is a bomb in the airport” etc.

10.1.5.7 Divulgence Of Passenger / Cargo Information

Passenger/Cargo Manifests and Passenger Name Records (PNR) are not to be disclosed to the public for security reasons and to protect the individual's privacy. The information shall only be divulged to the law enforcement organizations and interlines, on an operational basis with the prior consent of the Department Head concerned.

10.1.5.8 Red/Amber Warning (Positive)

Bomb threats concerning a bomb on board the aircraft should be dealt with in the following manner:

Message received before take off. Establish a liaison with the AA, CAD and Police. If the aircraft is at Hong Kong International Airport, the AVSECO must also be involved.

When the warning is considered Red, Police will conduct a search of the aircraft involved according to the recommended Bomb Search Sheets. If it is considered "Amber", HKEA may request Airport Security to conduct a search of the aircraft as above. Crew and passengers should evacuate the aircraft before commencing the search.

An announcement will be made by the crew before passenger evacuation from the aircraft. However, if it happens prior to boarding, ground staff should make the announcement. The announcement should only be made to concerned passengers.

A message received whilst an aircraft is in the air, regardless of the level of the threat, will be passed to the Commander through Movements Control or ATC. The Commander will be given the threat assessment evaluation if available.

Once the aircraft has landed, the handling procedure will be same as for the “message received before take off”.

Any query from the press regarding the bomb threat warning will be answered through the CEO or Company appointed spokesperson. Any reference to bombs should be avoided, since such publicity may encourage the hoaxer and also encourage other potential hoaxers.

10.1.5.9 Bomb Search Sheets

The Bomb Search Sheet(s) in Appendix III gives guidance as to the most likely places for explosive or incendiary devices to be hidden. Explosive articles have been concealed in toilets, and oxygen bottles. Company appointed operational personnel must conduct a thorough inspection in conjunction with the Security Forces, to look for anything out of place or any unusual objects.

Note: *Any information received which is considered a hoax or nuisance message should be treated on its merits. However, the depth of search is subject to discussion with the Flight Operations Department and may be modified accordingly.*

Before searching the aircraft it is recommended that the flaps and slats are extended, the APU and engine cowls opened, all entry/exit doors opened and all landing gear door opened.

If any panel appears disturbed, i.e. not correctly fastened, or dirt/oil marks appear smudged, the searcher should carry out a more thorough examination of the area, with the appropriate panels removed or opened.

Be cautious when opening/closing doors and when extending / retracting devices, due to the possibility of an anti-personnel device being present.

After all appropriate areas have been checked, the ground engineers should close all doors.

The FLIGHT CREW must be informed of the progress of the search.

10.1.6 Hijacking / Unlawful Seizure Of An Aircraft

10.1.6.1 General

As the circumstances surrounding a hijacking / unlawful seizure of an aircraft are highly variable, it is not possible to provide specific information to flight crews. However, the safety of the aircraft and its occupants must be the paramount consideration and any occurrence must be dealt with in accordance with the Commander's judgement of the prevailing circumstances.

Unlawful seizure or interference with an aircraft in service is a crime wherever it occurs and as such will be dealt with by the police or security forces in the same manner as any crime of violence. Commanders should anticipate that the police or security forces that have the necessary powers of arrest and entry on premises and property without warrant will begin to exercise their powers and their authority to control the future course of events as soon as the incident is reported. The responsibility of the Commander begins to diminish at this point and he becomes subject to the instructions of the relevant authorities.

Until this point is reached, the Commander is solely in command and his actions should be conditioned by the requirements of the hijacker in a manner which does not exacerbate the situation or increase risks to the passengers and crew.

It is the Commander's responsibility to adhere to the lawful instructions of the police or security forces to the extent that he considers this to be consistent with the safety of the passengers and crew.

10.1.6.2 Hijacker Profile

Some hijackers may harbour a desire to die under spectacular circumstances. They may seem to be confused. They may fail or refuse to name a destination or persist in ordering the flight to a destination that is impossible to reach. They may create highly unstable situations, changing orders as the flight progresses.

The crew should attempt to determine the hijacker's intended destination. A hijacker with no firm destination or a clearly impossible destination in mind may be considering suicide. This person creates a high-risk situation. A hijacker with a firm, reasonable destination in mind probably creates a situation of less immediate risk.

10.1.6.3 Guidelines In Dealing With Hijackers

If information is received that a suspected or declared hijacker is on board before take-off, the aircraft should be returned to the terminal. The crew will not attempt to evaluate or search suspicious persons. This will be done by trained security personnel.

Once the hijacker(s) has made his intentions known, the cabin crew should endeavour to keep him from entering the cockpit.

Cabin Crew should immediately advise the Commander on the interphone system of a hijacker(s) presence in the cabin by using the hijack code .

The hijacker shall be kept out of the cockpit.

If the hijacker(s) is in the cockpit, crew should endeavour to communicate the situation to ATC. Generally, hijackers are aware of the need for communication although they may be suspicious and demand that communications are monitored. He should be informed that no resistance will be offered, although he should be instructed not to touch any aircraft controls, systems or instruments.

If the hijacker(s) requests are unreasonable and will place the flight in danger, the consequences of such actions should be explained in a manner which does not aggravate the situation. Full account should be taken of the probability of the hijacker(s) being in a highly emotional state of mind. Pilots are advised to refrain from unnecessary conversation or actions which may irritate the hijacker(s).

The Commander should endeavour to land the aircraft using the pretext of fuel, weather, etc., as a reason.

Crew Members should not disagree with the hijacker(s); rather every endeavour should be made to relieve his anxiety in order to maintain an effective dialogue.

It is important to try and establish that the hijacker(s) does in fact have a weapon. Some hijackings have been attempted without a weapon.

Crew Members should not attempt to use force unless it is certain that such action will be successful.

After landing the Commander should attempt to stall for time, and try to negotiate the disembarkation of the passengers and Cabin Crew.

10.1.6.4 Communication Procedures

Where possible an attempt should be made to transmit to ATC a description of the hijacking/unlawful seizure of the aircraft. ATC will maintain normal responses to the aircraft without any reference to the emergency and will immediately activate the appropriate emergency procedures.

When circumstances prevent clear and concise radio transmissions, if possible, the following discrete communications message/procedure may be used.

- VHF communication is set up as follows:

  The Commander:
  - Ensure the Commander's speaker is off.
  - Use his headset
  - Monitor emergency frequency 121.5 on N°2 transceiver

  The co-pilot:
  - Monitor ATC on N°1 transceiver
  - Place the co-pilot's speaker ON to give the hijacker the impression that he is receiving all communications.

- Discrete transponder code is set as follows:

Situation	Signal	Cover Message
Aircraft being hijacked or subjected to unlawful interference.	Transponder to code 7500	“Transponder seven five zero zero”
In the air, when the situation is grave and immediate assistance is required.	Transponder to code 7700	“Transponder seven seven zero zero”

A pilot, having selected Code 7500 and subsequently requested to confirm this code by ATC shall, according to circumstances, either confirm this or not reply at all. The absence of a reply from the pilot will be taken by ATC as an indication that the use of Code 7500 is not due to an inadvertent false code selection.

Note: *If the hijacker is entering the cockpit, activate the ATC emergency mode pushbutton (if installed). Code 7700 will be activated without any possibility to de-activate it in flight.*

10.2 Preventive Security Measures And Training

10.2.1 Appendix I - Aircraft Search Checklist

AIRCRAFT INTERIOR

Flight Deck

(Tick when checked where applicable)

- ❑ Seats
- ❑ Cockpit floor area
- ❑ Ceiling, side and rear wall
- ❑ Pedestal and consoles
- ❑ Windshield area
- ❑ All instrument and switch panels
- ❑ All circuit breaker fuse panels
- ❑ Coat locker
- ❑ Ash trays
- ❑ Flight library stowage
- ❑ Life jacket stowage
- ❑ Spare lamp stowage
- ❑ Crew oxygen masks stowage
- ❑ Emergency door and mechanism

Forward Lavatory

(Tick when checked where applicable)

- ❑ Baby changing table
- ❑ Remove soiled and waste materials if not previously removed
- ❑ Remove and inspect containers under the sink
- ❑ Inspect area around sink
- ❑ Towel container
- ❑ Tissue dispenser
- ❑ Toilet seat and lid
- ❑ Mirror and compartments
- ❑ Ceiling, walls and floor
- ❑ Door

Forward Galley

(Tick when checked where applicable)

- ❑ Attendant seats & seat compartments
- ❑ Remove and inspect all drawer surfaces (inner and outer)
- ❑ Open and inspect all compartments & containers
- ❑ All accessible buffet surfaces
- ❑ Waste container
- ❑ Ceiling, walls and floor

Main Cabin

(Tick when checked where applicable)

- ❑ Passenger seats and seat pockets
- ❑ Overhead compartments
- ❑ Floor - DO NOT remove carpet unless there is evidence of a foreign body
- ❑ Side walls including windows
- ❑ Bulkheads, stowages, curtain
- ❑ Light recesses
- ❑ Magazine racks
- ❑ Lift jacket stowages
- ❑ Oxygen mask stowages
- ❑ First-aid kit, only if unsealed
- ❑ Drop movie projector (if equipped)
- ❑ Inspect internal area
- ❑ Coat closet
- ❑ Emergency door and mechanism
- ❑ Equipment pouches, only if unsealed

Rear Lavatories

(Tick when checked where applicable)

- ❑ Baby changing table
- ❑ Remove soiled and waste materials if not previously removed
- ❑ Remove and inspect containers under the sink
- ❑ Inspect area around sink
- ❑ Towel container
- ❑ Tissue dispenser
- ❑ Toilet seat and lid
- ❑ Mirror and compartments
- ❑ Ceiling, walls and floor
- ❑ Door

Rear Galley

(Tick when checked where applicable)

- ❑ Attendant seats & seat compartments
- ❑ Remove and inspect all drawer surfaces (inner and outer)
- ❑ Open and inspect all compartments & containers
- ❑ All accessible buffet surfaces
- ❑ Waste container
- ❑ Ceiling, walls and floor

AIRCRAFT EXTERIOR

Fuselage

(Tick when checked where applicable)

- ❑ Inspect belly from ground - all cargo and entrance doors should be closed
- ❑ Check all inlet scoops, exhaust outlets and in general all openings and doors with quick opening fasteners
- ❑ Air conditioning bays
- ❑ Hydraulic bays
- ❑ Potable water and toilet service panels
- ❑ Other locations

Wings

(Tick when checked where applicable)

- ❑ Leading edge flaps and leading edge cavities
- ❑ Wing rear spar areas
- ❑ Trailing edge flaps
- ❑ Ailerons and hinges
- ❑ Fuelling stations

Landing gear

(Tick when checked where applicable)

- ❑ Wheels and brakes
- ❑ Shock struts and retract mechanism
- ❑ Hydraulic installations
- ❑ Flight control mechanism in wheel wells
- ❑ Wheel well doors and mechanism

Engines

(Tick when checked where applicable)

- ❑ Inlet
- ❑ Exhaust
- ❑ Check fan and turbine reverse area

Empennage

(Tick when checked where applicable)

- ❑ Horizontal Stabilizer and elevator mechanism
- ❑ Vertical stabiliser and rudder mechanism
- ❑ Rear fuselage compartment
- ❑ APU compartment if applicable

10.2.2 Appendix II - Civil Aviation Risk Management Plan

Preface

ICAO Annex 17 requires that each Contracting State adjust security responses according to the level of threat to civil aviation operations within its territory. Based on the Risk Management Matrix of the ICAO Security Manual, a Civil Aviation Risk Management Plan (CARMP) for HKIA is developed with a view to adjusting the security responses for threat targeted at the airport, aircraft operators or high risk flights under different threat levels. It will also serve as the sole reference indicator of threat level and corresponding countermeasures at HKIA. In the context of this Risk Management Plan, high risk flights refer to the group of flights for specified aircraft operators and/or destination which, based on the intelligence from the Police, may be subject to higher threat.

The Risk Management Plan has adopted the 6-level threat system implemented by the Police which, as stipulated under the Hong Kong Aviation Security Program, is responsible for threat assessment. The security measures when threat level is "Negligible" form the baseline responses on which more stringent security measures are built up. Tighter security measures are proposed for implementation at the centralized screening checkpoints prior to entering the sterilized area to meet raised threat. Further enhancement of security responses are then adopted at departure gates to meet specific threat for high risk flights.

The security controls adopted in this CARMP only sets the minimum requirements of Aviation Security Authority under different threat levels, which should not prevent the airport manager or aircraft operators from heightening the security controls that they may think fit for further securing their operations.

Where there is information to suggest that a credible threat exists to civil aviation in Hong Kong, the Police shall advise the Aviation Security Authority and Civil Aviation Department (CAD) accordingly. Joint meeting chaired by the Aviation Security Authority, or CAD as delegated by the Aviation Security Authority, will be convened to specify the threat according to Police's specific intelligence and decide on additional security controls that may be required through consultation with Police, AAHK, AVSECO, aircraft operators and their handling agents as appropriate.

The threat levels in this CARMP are defined as follows:

(i)	Negligible	A target is unlikely to be attacked. There is a NEGLIGIBLE level of threat.
(ii)	Low	There is nothing to indicate that a target would be singled out for an attack and there is a LOW level of threat.
(iii)	Moderate	A target's circumstances indicate that there is potential for it to be singled out for attack and is at a MODERATE level of attack.
(iv)	Significant	Recent general intelligence on terrorist activity, the overall security and political climate or the targets general circumstances indicate that it is likely to be a priority target and is at a SIGNIFICANT level of threat.
(v)	High	Specific intelligence, recent events or a target's particular circumstances indicate that it is likely to be a high priority and the target is at a HIGH level of threat.

(vi) Imminent — Specific intelligence shows that a target is at a very high level of threat and that an attack is IMMINENT.

10.2.3 Appendix III - BOMB SEARCH SHEET

Refer to Security Programme Sec 11.4.11 for details.

Chapter 11 – Handling Of Accidents And Serious Occurrences

11.1 Terminology

Aircraft Accident'

An accident is an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all persons have disembarked, in which:

(a) A person is fatally or seriously injured as a result of:

- Being in the aircraft; or
- Direct contact with any part of the aircraft, including parts which have become detached form the aircraft; or
- Direct exposure to jet blast;
- Except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or

(b) The aircraft sustains damage or structural failure which:

- Adversely affects the structural strength, performance or flight characteristics of the aircraft; and
- Would normally require major repair or replacement of the affected component;
- Except for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, tyres, brakes, fairings, small dents or puncture holes in the aircraft skin: or

(c) The aircraft is missing or is completely inaccessible.

Aircraft Incident

An incident is an occurrence, other than an accident, associated with the operation of an aircraft, which affects or could affect the safety of operation.

An incident includes occurrences that:

(a) Has jeopardized the safety of the crew, passengers or aircraft but which has terminated without serious injury or substantial damage;

(b) Was caused by damage to, or failure of, any major component not resulting in substantial damage or serious injury but which will require the replacement or repair of that component;

(c) Has jeopardized the safety of the crew, passengers or aircraft and has avoided being an accident only by exceptional handling of the aircraft or by good fortune;

(d) Has serious potential technical or operational implications;

(e) Causes trauma to crew, passengers or third parties;

(f) Could be of interest to the press and news media.

Examples include loss of engine cowlings, portions of flap or control surfaces, items of ancillary equipment or fuselage panels; an altitude excursion; a minor taxiing accident; damage due to collision with ground equipment.

Serious Injury

'Serious injury' means an injury, which is sustained by a person in a reportable accident and which:

(a) Requires that person's stay in hospital for more than 48 hours commencing within seven days from the date on which the injury was sustained, or

(b) Results in the fracture of any bone, except simple fractures of fingers, toes or nose, or

(c) Involves lacerations which cause nerve, muscle or tendon damage or severe hemorrhage, or

(d) Involves injury to any internal organ, or

(e) Involves second- or third-degree burns or any burns affecting more than five per cent of the body surface, or

(f) Involves verified exposure to infectious substances or injurious radiation.

Serious Incident

"Serious incident" - an incident involving circumstances indicating that an accident nearly occurred.

Examples of Serious Incidents include the following:

(a) Near collisions requiring an avoidance manoeuvre or an unsafe situation or when an avoidance action would have been appropriate.

(b) Ground Proximity Warnings and recovery that prevented a CFIT (Controlled Flight Into Terrain).

(c) Aborted takeoffs on a closed or engaged runway.

(d) Landings or attempted landings on a closed or engaged runway.

(e) Gross failures to achieve predicted performance during takeoff or initial climb.

(f) Fires and smoke in the passenger compartment, in cargo compartments or engine fires, even if such fires were extinguished by extinguishing agents.

(g) Events requiring the emergency use of oxygen by the Flight Crew.

(h) Aircraft structural failures or engine disintegrations not classified as an accident.

(i) Multiple malfunctions of one or more aircraft systems seriously affecting the operation of the aircraft.

(j) Flight crew incapacitation in flight.

(k) Low fuel quantity requiring the declaration of an emergency by the Pilot.

(l) Takeoff or landing incidents such as under-shooting, overrunning or excursion off the side of runways.

(m) System failures, weather phenomena, operations outside the approved flight envelope or other occurrences that could have caused difficulties controlling the aircraft.

(n) Failures of more than one system in a redundancy system mandatory for flight guidance and navigation.

Significant Incident

This includes serious incidents and incidents of nature that is unusual and of public interest. Incidents such as aircraft collision on the ground, passenger evacuation (use of escape slides), landing on wrong runway or mishaps, would be considered significant.

Substantial Damage

Damage or structural failure which adversely affects the structural strength, performance or the flight characteristics of the aircraft and which necessitates a major repair or replacement of a component of the aircraft.

11.2 Accident Procedures

11.2.1 General

Circumstances surrounding an accident will vary in each case, and, therefore, many decisions can only be made after the location, extent of damage, casualties etc are known. Nonetheless, certain predetermined steps must be taken at base immediately it is known that one of the company's aircraft has been involved in an accident.

In this context, and in accordance with Hong Kong legislation, an "accident" associated with the operation of an aircraft is "reportable" if, during the period after a person has boarded the aircraft with the intention of flight until all such persons have disembarked:

Anyone associated with the aircraft, including a third party, is killed or seriously injured, other than by natural causes, self-inflicted injury, malicious intent or stowing away in non-personnel areas,

The aircraft incurs damage or structural failure which adversely affects its structural strength, performance or flight characteristics, and which would normally require major repair or replacement of the affected component, other than:

(i) Engine failure or damage, where the damage is limited to the engine, its cowling or accessories,
(ii) Damage limited to propellers, wing tips, antennae, tyres, brakes, fairings, small dents or punctures in the aircraft skin,

The aircraft is missing or completely inaccessible.

The regulations require that a "reportable accident" should be notified as soon as possible to the Director General of Civil Aviation.

The Director General of Civil Aviation
Civil Aviation Department,
1 Tung Fai Road,
Hong Kong International Airport,
Lantau, Hong Kong.

Tel	:	2910 6821
Telefax	:	2869 0093
Telex	:	61361 CADHK HX
AFS Address	:	VHHHYAYX
Electronic Mail Address	:	enquiry@cad.gov.hk
Web Page	:	http://www.info.gov.hk/cad

If the accident occurs in or over Hong Kong, it should also be notified to the Commissioner of Police.

The notification should be made by the Commander of the aircraft involved in the accident or, if he is killed or incapacitated, by the Operator of the Aircraft. In the case of HKEA, this will be the Director, Operations.

11.2.2 Commander / Crew Post-accident Procedures

Immediately after an accident and following the evacuation of any passengers from the aircraft, the Commander, a Crew Member or a delegated person must carry out the following duties subject to safety considerations and the prevailing situation:

(a) The aircraft must be secured in a condition as safe as possible;

(b) A head count must be made to account for all persons on board the Aircraft;

(c) The needs of any injured persons must be attended to;

(d) The remains of any deceased persons should be decently set apart and covered;

(e) The distress beacon must be activated and pyrotechnics, if available, prepared for immediate use;

(f) If people, dwellings or communications facilities are close to the accident site, efforts to obtain assistance must be made, having regard to the local situation.

The wreckage of the aircraft must be preserved and unauthorized persons should not be allowed access to it. An authorized person is any person nominated by the accident investigation authority or regulatory authority, and usually includes police, fire and rescue services.

11.2.3 Preservation, Production And Use Of Flight Data

- Following an accident, the company will preserve all Digital Flight Data Recorder (DFDR) and Cockpit Voice Recorder (CVR) data and make it available to the investigating authority.
- The company shall preserve any data from the DFDR or CVR relevant to the reportable occurrence for 60 days from the date on which a report of that occurrence is made to the DO or for such a longer period as the DO may in a particular case direct.
- Following an accident, the DFDR and CVR, if located must be secured. The recovery and handling of the DFDR and CVR will be delegated to qualified personnel only.
- Following an accident, all reasonable measures must be taken to protect the evidence and to maintain safe custody of the aircraft and its contents for such a period as may be necessary for the purposes of the investigation. Safe custody shall include protection against further damage, access by unauthorized persons, pilfering and deterioration.

The use of flight recorder data might be necessary for the proper investigation of the more significant occurrences.

It is not intended to use such data to check on information contained in a written report, but to supplement and extend the written information. Examples of the types of occurrence for which flight data records would be most useful are:

(a) Significant excursion from the intended flight parameters;

(b) Significant loss of control or control difficulties;

(c) Unexpected loss of performance;

(d) A genuine warning from the Ground Proximity Warning System (GPWS).

11.2.4 Preservation Of Documentation

In the event of an accident involving a company aircraft it is vital that all documentation relating to the aircraft, its crew and the flight is preserved. In particular, at Hong Kong, the following documentation must be secured:

- Aircraft Maintenance Record
- Copies of Aircraft Certificates
- Records of Crew Duty Periods and Rest Periods
- Crew Training Records
- Flight Crew Log Books

11.2.5 Additional Documentation

Additionally, at the last point of departure, the following documentation must be secured:

- Load Sheet
- Copy of Technical Log
- Passenger Manifest
- Copy of Meteorological information supplied for the flight
- Copy of Navigation Log and Fuel Calculation (if available)

In the event of a major accident involving a company aircraft, resulting in extensive damage to the aircraft or property, loss of life, serious injury etc., the incident will be investigated by an Accident Investigation Team appointed by the DO.

In the event of an accident of a minor nature, the DO may, at his discretion, authorize the GMQSS to conduct the investigation.

11.3 Mandatory Occurrences Reports

The following is a summary of incidents which should be reported as Mandatory Occurrence Reports (MORs) - it is not exhaustive and should be considered only as a guide. HKCAD 382 'The Mandatory Occurrence Reporting Scheme' contains a more comprehensive list. The full list can be downloaded from the Company Intranet under the Safety and Security Department webpage.

MORs are required to be submitted to the CAD within 96 hours of the event, to this end please ensure that the form is passed immediately to the Quality, Safety and Security Department by the reporter or station representative upon arrival.

Essentially any event which, under unfavorable circumstances, could potentially have, or has, resulted in the loss of or damage to an aircraft or injury to its occupants is deemed to be reportable:

- Involving damage to an aircraft;
- Involving injury to a person;
- Involving the impairment during a flight of the capacity of a member of the flight crew of an aircraft to undertake the functions to which his duty relates;
- Involving the use in flight of any procedures taken for the purpose of overcoming an emergency;
- Involving the failure of an aircraft system or of any equipment of an aircraft;
- Arising from the control of an aircraft in flight by its flight crew;
- Arising from failure or inadequacy of facilities or services on the ground used or intended to be used for purposes of or in connection with the operation of an aircraft;
- Arising from the loading or the carriage of passengers, cargo (including mail) or fuel.

MORs are also to be raised in the following specific circumstances:-

- Failure of emergency or redundant equipment/systems to operate correctly;
- Any Ground proximity warning.
- TCAS Resolution Advisory (RA) where a realistic threat of collision was deemed to have existed;
- Activation of primary flight control warning system, over - speed etc;
- Significant, unintentional deviation from assigned track or altitude (+/- 300ft);
- Significant inadvertent reduction in airspeed;
- Heavy landing requiring an overweight landing check;
- Rejected takeoff at speeds near V1, which may have resulted in a hazardous situation;
- Descent below MDA/DA in IMC conditions;
- Go around producing a hazardous or potentially hazardous situation;
- Flap or slat asymmetry;

- A significant loss of braking;
- A warning of smoke or fire resulting from a situation hazardous to the aircraft or its occupants;
- Leakage of fuel or other fluids, which resulted in a fire or contamination hazard;
- Passenger smoking in lavatory/tampering with lavatory smoke detection equipment;
- Passenger behaviour resulting in the use of restraining force or use of the restraining kit.

Whenever an MOR is submitted involving any technical deficiencies including aircraft components, Commanders are to ensure that Maintenance Log entries are annotated “THIS ENTRY IS THE SUBJECT OF MOR ACTION”.

11.4 Airline Safety Report

All air safety occurrences are to be reported using the approved ASR report form supplies of which are carried in the aircraft documents file. Airline Safety Report (ASR) may be raised by Flight Crew or Ground Crew as follows:

(a) The originator will complete the form as soon as possible after the incident. If the report is raised by a flight crew member and affecting an aircraft system or a component, the crew member will enter 'ASR RAISED' in the aircraft technical log (this entry is the trigger for action).

(b) The completed form must be submitted to the Quality, Safety and Security Department as soon as possible after the incident so that action can be expedited.

(c) The use of flight envelops for submitting a Safety Report is no longer encouraged. Flight Crew should submit their report using the following avenues to ensure timely handling and confidentiality.

- Take a photo of the completed safety report (ASR available in the Aircraft Library) and email it to QSS@hkexpress.com, or
- Download the latest safety forms from DMS and email the completed e-copy of the safety report to QSS@hkexpress.com.
- Drop off your completed safety report (ASR available in the Aircraft Library) to the QSS mailbox located in the ABO, immediately after your flight or the next time at ABO if within 48 hours of the event.
- Company email must be used for Safety Report submission to Quality, Safety and Security department.

11.4.1 Reporting Responsibility

Flight Crew responsibility for reporting commences with the acceptance of the aircraft for flight (i.e. the signing of the Technical Log) and ceases on completion of the Technical Log at the end of consecutive duty sectors. Ground Crew responsibility for reporting exists at all other times.

11.4.2 Handling Of ASR

On receipt of a report the Safety Department will:

(a) Assess the ASR commensurate with the regulatory authority's mandatory reporting criteria and decide whether it merits submission;

(b) Enter the report into the database, ensuring that follow-up action is requested from the appropriate department(s);

(c) File the original report.

If an MOR is submitted to the Authority the reporter will be advised accordingly.

11.4.3 Airline Safety Report

Following is a listing of the types of occurrences, or safety events to be reported as ASR. The list is neither exhaustive nor in any order of importance. (Some items may be required to be reported under HKCAD regulations.) If in doubt, submit a report.

Aircraft Structure

- Any failure of aircraft primary structure;

- Cracks, permanent deformation or corrosion of aircraft primary structure that a repair scheme is not already provided in the manufacturer's repair manual, or that occur after repair.
- Any part of the aircraft that would endanger the aircraft or any person becoming detached in flight or during operations on the ground;
- Ground damage occurs to any external part of the aircraft including collision with vehicles, equipment or construction;

Powerplant

- Loss of thrust/ power, shutdown or failure of any engine;
- Inability to shut down an engine or to control power, thrust or RPM;

Aircraft Systems Or Equipment

- Any system defect which adversely affects the handling or operation of the aircraft;
- Fire or explosion;
- Warning of smoke, toxic or noxious fumes in the aircraft; including the activation of toilet smoke detectors.
- Tyre burst;
- The use of EMERGENCY checklists;
- Fuel system malfunction that has significant effect on fuel supply and /or distribution;
- Any loss or malfunction of one or more main system(s), subsystem(s), or set(s) of equipment (e.g. hydraulic power, flight control system [auto flight, auto trim], electrical power, air systems, ice protection, navigation systems and instruments, warning systems and devices, brake systems);
- Uncontained failure of any high-speed rotating component, (e.g. auxiliary power unit, air starters, air cycle machine);
- Asymmetry of flaps, slat, spoilers, (i.e. limiting systems do not function properly), or limitation of movement of one or more of these surfaces;
- Limitation of movement, stiffness, poor or delayer response in the operation of flight control systems or their associated control/trim tab and locking systems;
- Any failure, defect, malfunction or deterioration of any critical item, system, or equipment found as the result of any special mandatory inspection or check (e.g. an airworthiness directive or alert service bulletin);
- Defect or deterioration of systems or components found during routine maintenance, overhaul or repair, when of a type not expected as a result of normal service;
- System/component defects or malfunctions identified by routine testing and inspection procedures on the aircraft or in workshops, where there is a likelihood that other Operators might have similar but undetected defective items;
- Defective, malfunctioning or loss of any emergency equipment or life-support system (e.g. oxygen, fire protection);
- Damage to the aircraft and loss or malfunction of any essential service, or engine, as the result of a lightning strike;

- Safety equipment or procedures are defective or inadequate;
- An engine is shut down or fails at any stage of the flight;
- A navigation error involving a significant deviation from track;
- Exceeding the limiting parameters for the aircraft configuration or when a significant unintentional speed change occurs;
- GPWS activation;
- Whenever a GPWS warning occurs;
- Hard warning;
- Soft warning in IMC;

Operations

- Bird strike or Foreign Object Damage (FOD); and
- Security procedures are breached;
- Violent, armed or intoxicated passengers, or when restraint is necessary;
- A serious ATC incident, e.g. near mid-air collision, runway incursion, incorrect clearance;
- Significant wake turbulence, turbulence, windshear or other severe weather;
- A go-around is carried out from below 1000 ft above ground level or a windshear go-around is flown;
- An altitude excursion of more than 500 feet occurs;
- Any other event considered likely to have an effect on safety or aircraft operations.
- Serious deficiencies in operational documentation;
- Crew or passengers become seriously ill, are injured, become incapacitated or deceased;
- Aircraft lands with reserve fuel or less remaining;
- A TCAS RA event;
- Hazardous surface conditions, e.g. icy, slush, poor braking;
- Communications fail or are impaired;
- The aircraft leaves the runway or taxiway or other hard standing;
- Incorrect loading of fuel, cargo or dangerous goods, or a significant load-sheet error;
- A take-off is rejected after take-off power is established;
- An emergency is declared;
- The aircraft is evacuated by means of the emergency exits/slides;
- Significant deviation from normal operating procedures;
- Unstabilized approach under 500 feet;
- A stall warning occurs;
- A heavy landing check is required;
- When a runway/ taxiway excursion occurs; if any part of the aircraft leaves the paved surface during taxiing, take-off and landing;
- When a significant handling difficulties are experienced;

- When a height control error of more than 300 ft occurs;
- Landing at the incorrect airport;
- Whenever a stall warning occurs;
- When a heavy landing check is required;
- When serious loss of braking occurs;
- When there is difficulty in controlling violent armed or intoxicated passengers or when the passenger restraint kit is used;
- When an act of aggression, e.g. bomb threat or hi-jack occurs;
- When security procedures are breached;
- Damage caused to a third party, including other aircraft or any injury to persons by engine blast or anything associated with the aircraft;
- NAVAID, approach aid or airport deficiencies;
- When any event where safety standards are significantly reduced occurs;
- Any event which may provide useful information for the enhancement of flight safety occurs

11.5 Incident Group Flow Chart And List Of Responsibilities

Refer to Crisis Management Manual (CMM) Section 5.

11.6 In-House Investigation

11.6.1 General

It is advisable for the company to conduct an in-house investigation following an accident or incident even though it may also be the subject of a Government investigation.

Whereas many incidents are not required to be reported to the state, they may be indicative of potentially serious hazards.

The company has to ascertain quickly whether any immediate corrective actions are needed. Also, the company may proceed for an in-house investigation to identify the origin of potential hazards and to be able to put in place necessary corrective actions.

11.6.2 Policy

If a Company investigation into an incident becomes necessary, an Investigating Board should be convened at the direction of the Director, Operations or GMME (as appropriate). The Safety Department may be appointed to act on their behalf.

The investigation should commence as soon as possible after the event.

11.6.3 Investigating Board's Terms Of Reference

The Board's objective is to investigate and report on any aspect considered to be relevant to an understanding of the incident. This is achieved by:

(a) Examining the circumstances surrounding the incident to discover the likely cause;

(b) Making recommendations to prevent recurrence.

Note: *It must be made clear that it is not the purpose of the investigation to apportion blame.*

11.6.4 Preparation

All relevant documents should be gathered and made available for reference. This list is not exhaustive, but will typically include, as appropriate:

(a) The original Air Safety Report;

(b) Crew statements;

(c) Crew license details and training records;

(d) Witness statements;

(e) Photographs;

(f) Flight documentation (navigation log, weight and balance information, etc);

(g) Operating/maintenance manuals and checklists.

Obtain also, if appropriate:

- All relevant DFDR printouts and CVR transcripts;
- ATC voice tapes or transcripts.

The Commander of the aircraft must take all necessary action to ensure that the relevant flight documents are dispatched to Flight Operations, Hong Kong.

11.6.4.1 Statements

Statements will be obtained from the following people:

(a) All surviving Crew Members
(b) Eye witnesses
(c) Some passengers (if available).

The Aircraft Commander and all Crew Members should retain copies of statements made by themselves to the Reporting Official and / or to the Investigating Officer. Any copies of original statements must be certified as true copies by the Reporting Official or Investigating Officer as applicable.

11.6.4.2 Medical Examination Of Crew

Medical examination of all Crew will be carried out as soon as possible following an aircraft accident. In the case of Flight Crew, the examination will include a toxicological test.

11.6.4.3 Investigations For Cabin Related Incidents

Should it be necessary to relieve any cabin crew of their duties following an incident to facilitate investigations, the decision to do so will be made by the Quality, Safety & Security Department in consultation with Service Development Department.

Following the investigations, Regulatory Training & Development Department will decide if any SEP retraining is necessary, coordinating this requirement with Service Development Department.

11.6.5 Reporting The Results Of The Investigation

The Investigating Board's findings should be written up under the following suggested headings:

11.6.5.1 Summary of the Incident

A brief account of events compiled from the initial report, including the aircraft type and registration, date and time, place, nature of event, etc;

11.6.5.2 History Of The Flight

(a) A detailed account of the incident, including:
(b) The time the Crew reported for duty;
(c) The composition of the crew (including Cabin Crew);
(d) Expected duty to be carried out;
(e) Details of the previous rest and duty periods up to the time of the incident;
(f) Departure time;
(g) Aircraft weight, fuel load and payload;
(h) Action taken at the time of the incident and its effects.

11.6.5.3 Investigation Of Circumstances

(a) Injuries to persons (with medical evidence appended);
(b) Damage to aircraft (with photographs/sketches and engineering or strip examination reports appended);
(c) Damage to third party equipment or installations;

(d) Crew information (assigned position - PF/PM/relief Crew -, license details, qualifications, total hours flown, total hours on type; for Pilot-In-Command, total hours in command; Cabin Crew);

(e) Aircraft information (any permitted limiting serviceability's);

(f) Meteorological information (forecasts and METARS, prevailing conditions at the time of the incident);

(g) Aids to navigation (serviceability of navigational aids and any relevant NOTAMS);

(h) Communications (list service in use at the time of the incident and append any relevant ATC tape transcripts)

(i) Airfield and ground facilities (airport conditions; emergency services cover and its effectiveness);

(j) Flight recorders (DFDR/QAR/CVR evidence);

(k) Wreckage (list the type and location of any wreckage and components; append maps showing the position of any parts of the Aircraft which migrated in flight; include an account of any operation to salvage or remove an aircraft from the runway;

(l) Survival aspects (list safety equipment and drills used; highlight any deficiencies found);

(m) Tests and research (summarize technical evaluations of component defects and append the results of any equipment strip examination; list simulator checks conducted in the course of the investigation);

(n) Other information (items to be included under a non-specific heading such as CRM aspects and the effects of decisions made in handling the incident).

11.6.5.4 Analysis And Conclusions

All evidence, supporting documents, data and references should be collated and the incident summarized commensurate with the circumstances.

Only the professional opinion of the Board should be stated. If there is any matter of conjecture it must be stated as such.

State the findings and cause (an open conclusion may be declared).

11.6.5.5 Recommendations

Recommendations, if any, must be made in relation to the Investigating Board's Terms of Reference.

The report should be signed by all members of the Investigating Board then submitted to the Director, Operations or GMME, for their consideration.

11.6.5.6 Information Dissemination

Significant incidents will be posted on the Safety Website. The subsequent investigation reports and findings will also be posted following their completion. Summary of Incident reports will be published in the Safety Newsletter along with a short brief of the investigation findings.

Chapter 12 – Rules Of The Air

12.1 General

The Rules of the Air are promulgated in ICAO Annex 2. ICAO member states are required to comply with these rules unless they have published a difference from these rules. HK Rules of the air, including all differences from ICAO, are published in the AN(HK)O.

All HKEA flights are required to comply with;

- The Hong Kong published rules when operating within the Hong Kong FIR.
- The rules of a contracting states, when operating within that states FIR, including any published differences.
- When operating over the "High Seas", the ICAO rules are to be applied without any differences.

The ICAO rules and any state differences are published in the NavTech Route Manual.

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Chapter 13 – Leasing

13.1 Definitions

Dry lease: The lease of an aircraft without the flight crew. In the context of this chapter, a "dry lease" is a lease of an aircraft where the aircraft is operated under the AOC of the lessee.

Wet lease: The lease of an aircraft including the flight crew. In the context of this chapter, a "wet lease" is a lease of an aircraft where the aircraft is operated under the AOC of the lessor.

HK Operator: An operator certificated under HKCAD360 by Hong Kong Civil Aviation Department (HKCAD).

13.2 Leasing of Aircraft Between Hong Kong Operators

13.2.1 Wet Lease-Out

A wet lease out corresponds to a Hong Kong operator providing an aircraft and complete crew to another Hong Kong operator, and retaining all the functions and responsibilities prescribed in HKCAD 360.

In this case, the lessor shall remain the operator of the aircraft and approval must be obtained from the HKCAD.

13.2.2 All Leases Except Wet Lease-Out

In this case, the lessor must obtain prior approval for the operation from HKCAD. Any conditions being part of this approval must be included in the lease agreement.

13.3 Leasing of Aircraft Between HKEA and a Non-HK Operator

13.3.1 Dry Lease-In

A dry lease-in must be approved by the HKCAD and any conditions being part of this approval must be included in the lease agreement.

The Director, Quality, Safety and Security (GMQSS) shall ensure that, with regard to aircraft that are dry leased, any differences from the requirements prescribed in HKCAD 360 are notified to and are acceptable to HKCAD.

13.3.2 Wet Lease-In

A wet lease-in must be approved by the HKCAD.

The GMQSS shall ensure that, with regard to aircraft that are wet leased-in:

- The safety standards of the lessor with respect to maintenance and operation are equivalent to HKCAD 360.
- The lessor is an operator holding an AOC issued by a State which is a signatory to the Chicago Convention.

- The aircraft has a standard Certificate of Airworthiness issued in accordance with ICAO Annex 8.
- Any requirements stipulated by the HKCAD are complied with.

The HQSS shall organize an audit to ensure that the above requirements are met.

13.3.3 Dry Lease-Out

A dry lease-out for the purpose of commercial air transportation to any operator which is signatory to the Chicago Convention may be achieved provided that the following conditions are met:

- The HKCAD has exempted the lessor from the relevant provisions of HKCAD 360 and, after the foreign regulatory authority has accepted responsibility in writing for surveillance of the maintenance and operation of the aircraft, HKCAD has removed the aircraft from its AOC.
- The aircraft is maintained according to an approved maintenance programme.

13.3.4 Wet Lease-Out

The lessor shall remain the operator of the aircraft.

13.4 Leasing of Aircraft at Short Notice

In case of an immediate, urgent and unforeseen need for a replacement aircraft, the approval required by paragraph 13.3.2 above may be deemed to have been given, provided that:

- The lessor is an operator holding an AOC issued by a State which is a signatory to the Chicago Convention.
- The lease-in period does not exceed 5 consecutive days.
- The HKCAD is immediately notified of the use of this provision.

13.5 Company Responsibility

In HKEA, authority for finalizing all leasing arrangements lies with the Chief Executive Officer.