AVIATION SAFETY FORMS MANUAL

SECTION:	**AIRWORTHINESS FORMS**	**GTF-COR-004**
TITLE:	**CAR OPS-1 SUBPARTS K AND L COMPLIANCE CHECK LIST**	

GENERAL

Company name:	
Physical address:	
Telephone:	
Email address:	
AOC #:	
Airport:	
Aircraft Registration:	
Aircraft Serial Number:	
Aircraft Type:	
CAR OPS-1 Subparts K & L issue date:	

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OPERATOR CERTIFICATION STATEMENT

The aircraft A6- has been evaluated to meet the requirements of CAR-OPS 1 Subparts K & L as per the recommendations of the type certificate holder. This checklist needs to comply with latest GCAA regulations, in case of introduction new or amended regulations / requirement the checklist needs to be re-evaluated. The data contained in this checklist will be reviewed at least annually for validity.

This checklist contains the Instruments and Equipment including Communication and Navigation equipment which form basis for the aircraft to operate under CAR OPS-1. This checklist reflects actual status of the above mentioned aircraft for its safe operation.

It is understood that the GCAA reserves the right to suspend, limit or revoke the approval of the CAR OPS 1 Subparts K & L checklist if it has evidence that the requirements are not complied with.

The CAR OPS 1 Subparts K & L compliance list has been analysed and found complaint with the latest revision requirements of CAR OPS 1.630 through CAR OPS 1.872.

No revision shall be inserted in the CAR OPS 1 Subparts K & L checklist unless prior approval is granted by the GCAA.

Name:

Signed:

Owner/Accountable Manager

Date:

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LIST OF EFFECTIVE PAGES

The list below identifies the Subparts K & L list and shows the number of pages as well as the date and issue status of each Page.

Revisions carried out on any page/s will result in the complete Subparts K & L list being raised to the next Issue Number. A vertical line that appears in the right hand column of the page will indicate the changes that have occurred and any text changes will appear in *italicized text* with a revision bar in the RH column.

A new list of effective pages will be issued with each revision in order to provide a means for the manual holder to check that their manual is at the correct issue status.

Document	Pages	Dated	Issue

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LIST OF EFFECTIVE PAGES

(RESERVED)

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RECORD OF REVISIONS

The list below indicates the issue number of the Aircraft Maintenance program and shows the date and briefly describes the amendment carried out.

Issue No.	Issue Date	Amendment

SECTION:	**AIRWORTHINESS FORMS**	**GTF-COR-004**
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LIST OF ABBREVIATIONS TERMS AND DEFINITIONS

All significant terms and abbreviations used within this program are defined in accordance with the Type Certificate holder's definitions, current CAR and GCAA definitions.

The check list is structured in Five Columns.

CAR-OPS 1 provision	S	U/S	N/A	Comment

First Column (CAR-OPS 1 provision) - List of requirements to be complied with.
Second Column (S) - "S" stands for confirmation of compliance with the requirement.
Third Column (U/S) - "U/S" stands for confirmation of non-compliance with the requirement.
Fourth Column (N/A) - "N/A" stands for the requirement is not applicable for the aircraft
Fifth Column (Comments) - To record reference of the document when the requirement is complied with or to provide justification when the requirement is "Not Complied" with or "Not Applicable".

The applicant shall confirm the compliance status for each requirement as S or U/S or N/A in the respective column 2nd or 3rd or 4th, as applicable, and provide corresponding comments in 5th column.

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CAR-OPS 1 provision	S	U/S	N/A	Comment
SUBPART K INSTRUMENTS AND EQUIPMENT				
CAR-OPS 1.630 General introduction				
(a) An operator shall ensure that a flight does not commence unless the instruments and equipment required under this Subpart are: (1) Installed as such that the failure of any single unit required for either communications or navigation purposes or both will not result in the failure of another unit required for communications or navigation purposes. (2) Approved, except as specified in sub-paragraph (c), and installed in accordance with the requirements applicable to them, including the minimum performance standard and the operational and airworthiness requirements; and (3) In operable condition for the kind of operation being conducted except as provided in the MEL (CAR-OPS 1.030 refers). (4) Placards, listings, instrument markings, or combinations thereof, containing those operating limitations prescribed by the certificating authority of the State of Registry acceptable to the GCAA for visual presentation, are displayed in the aeroplane.				
(b) Instruments and equipment minimum performance standards are those prescribed in the applicable Technical Standard Orders (TSO) unless different performance standards are prescribed in the operational or airworthiness codes. Instruments and equipment complying with design and performance specifications other than TSO on the date of CAR–OPS implementation may remain in service, or be installed, unless additional requirements are prescribed in this Subpart. Instruments and equipment that have already been approved do not need to comply with a revised TSO or a revised specification, other than TSO, unless a retroactive requirement is prescribed.				

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CAR-OPS 1 provision	S	U/S	N/A	Comment
SUBPART K INSTRUMENTS AND EQUIPMENT				
(c) The following items shall not be required to have an equipment approval: (1) Fuses referred to in CAR-OPS 1.635; (2) Electric torches referred to in CAR-OPS 1.640(a)(4); (3) An accurate time piece referred to in CAR-OPS 1.650(b) & 1.652(b); (4) Chart holder referred to in CAR–OPS 1.652 (n). (5) First-aid kits referred to in CAR-OPS 1.745; (6) Emergency medical kit referred to in CAR-OPS 1.755; (7) Megaphones referred to in CAR-OPS 1.810; (8) Survival and pyrotechnic signalling equipment referred to in CAR-OPS 1.835(a) and (c); and (9) Sea anchors and equipment for mooring, anchoring or manoeuvring seaplanes and amphibians on water referred to in CAR-OPS 1.840. (10) Child restraint devices referred to in CAR-OPS 1.730(a)(3).				
(d) If equipment is to be used by one flight crew member at his station during flight, it must be readily operable from his station. When a single item of equipment is required to be operated by more than one flight crew member it must be installed so that the equipment is readily operable from any station at which the equipment is required to be operated.				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
(e) Those instruments that are used by any one flight crew member shall be so arranged as to permit the flight crew member to see the indications readily from his station, with the minimum practicable deviation from the position and line of vision which he normally assumes when looking forward along the flight path. Whenever a single instrument is required in an aeroplane operated by more than 1 flight crew member it must be installed so that the instrument is visible from each applicable flight crew station.				
(f) An operator shall not employ electronic navigation data products that have been processed for application in the air and on the ground unless; (1) Approved, ensuring that the procedures including process applied and the products delivered have met acceptable standards of integrity; and (2) That the products are compatible with the intended function of the equipment that will use them. (3) Ensure continues monitoring for both process and products.				
(g) An operator shall implement procedures that ensure the timely distribution and insertion of current and unaltered electronic navigation data to all aircraft that require it.				
(h) An operator shall not operate a pressurized aeroplane for which the individual certificate of airworthiness was first issued on or after 1 January 1990 intended to be operated at flight altitudes at which the atmospheric pressure is less than 376 hPa unless, it is equipped with a device to provide positive warning to the flight crew of any dangerous loss of pressurization.				
CAR-OPS 1.635 Circuit protection devices				
An operator shall not operate an aeroplane in which fuses are used unless there are spare fuses available for use in flight equal to at least 10% of the number of fuses of each rating or three of each rating whichever is the greater.				

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CAR-OPS 1 provision	S	U/S	N/A	Comment
SUBPART K INSTRUMENTS AND EQUIPMENT				
CAR-OPS 1.640 Aeroplane operating lights				
An operator shall not operate an aeroplane unless it is equipped with:				
(a) For flight by day: (1) Anti-collision light system; (2) Lighting supplied from the aeroplane's electrical system to provide adequate illumination for all instruments and equipment essential to the safe operation of the aeroplane; (3) Lighting supplied from the aeroplane's electrical system to provide illumination in all passenger compartments; and (4) An electric torch for each required crew member readily accessible to crew members when seated at their designated station.				
(b) For flight by night, in addition to equipment specified in paragraph (a) above: (1) Navigation/position lights; and (2) Two landing lights or a single light having two separately energised filaments; and (3) Lights to conform with the International regulations for preventing collisions at sea if the aeroplane is a Seaplane or an Amphibian.				
CAR-OPS 1.645 Windshield wipers				
An operator shall not operate an aeroplane with a maximum certificated take-off mass of more than 5700 kg unless it is equipped at each pilot station with a windshield wiper or equivalent means to maintain a clear portion of the windshield during precipitation.				

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CAR-OPS 1 provision	S	U/S	N/A	Comment
SUBPART K INSTRUMENTS AND EQUIPMENT				
CAR-OPS 1.650 Day VFR operations - Flight and navigational instruments and associated equipment				
An operator shall not operate an aeroplane by day in accordance with Visual Flight Rules (VFR) unless it is equipped with the flight and navigational instruments and associated equipment and, where applicable, under the conditions stated in the following sub-paragraphs:				
(a) A magnetic compass;				
(b) An accurate timepiece showing the time in hours, minutes, and seconds;				
(c) A sensitive pressure altimeter calibrated in feet with a sub-scale setting, calibrated in hectopascals/millibars, adjustable for any barometric pressure likely to be set during flight;				
(d) An airspeed indicator calibrated in knots;				
(e) A vertical speed indicator;				
(f) A turn and slip indicator, or a turn co-ordinator incorporating a slip indicator;				
(g) An attitude indicator;				
(h) A stabilised direction indicator; and				
(i) A means of indicating in the flight crew compartment the outside air temperature calibrated in degrees Celsius (See AMC OPS 1.650(i) & 1.652(i)).				
(j) For flights which do not exceed 60 minutes duration, which take off and land at the same aerodrome, and which remain within 50 nm of that aerodrome, the instruments prescribed in sub-paragraphs (f), (g) and (h) above, and sub-paragraphs (k)(4), (k)(5) and (k)(6) below, may all be replaced by either a turn and slip indicator, or a turn co-ordinator incorporating a slip indicator, or both an attitude indicator and a slip indicator.				

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CAR-OPS 1 provision	S	U/S	N/A	Comment
SUBPART K INSTRUMENTS AND EQUIPMENT				
(k) Whenever two pilots are required the second pilot's station shall have separate instruments as follows: (1) A sensitive pressure altimeter calibrated in feet with a sub-scale setting calibrated in hectopascals/millibars, adjustable for any barometric pressure likely to be set during flight; (2) An airspeed indicator calibrated in knots; (3) A vertical speed indicator; (4) A turn and slip indicator, or a turn co-ordinator incorporating a slip indicator; (5) An attitude indicator; and (6) A stabilised direction indicator.				
(l) Each airspeed indicating system must be equipped with a heated pitot tube or equivalent means for preventing malfunction due to either condensation or icing for: Aeroplanes with a maximum certificated take-off mass in excess of 5700 kg or having a maximum approved passenger seating configuration of more than 9;				
(m) Whenever duplicate instruments are required, the requirement embraces separate displays for each pilot and separate selectors or other associated equipment where appropriate.				
(n) All aeroplanes must be equipped with means for indicating when power is not adequately supplied to the required flight instruments; and				
(o) All aeroplanes with compressibility limitations not otherwise indicated by the required airspeed indicators shall be equipped with a Mach number indicator at each pilot's station.				
(p) An operator shall not conduct Day VFR operations unless the aeroplane is equipped with a headset with boom microphone or equivalent for each flight crew member on flight deck duty (See IEM OPS 1.650(p)/1.652(s)).				

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CAR-OPS 1 provision	S	U/S	N/A	Comment
SUBPART K INSTRUMENTS AND EQUIPMENT				
CAR-OPS 1.652 IFR or night operations – Flight and navigational instruments and associated equipment				
An operator shall not operate an aeroplane in accordance with Instrument Flight Rules (IFR) or by night in accordance with Visual Flight Rules (VFR) unless it is equipped with the flight and navigational instruments and associated equipment and, where applicable, under the conditions stated in the following sub-paragraphs:				
(a) A magnetic compass;				
(b) An accurate time-piece showing the time in hours, minutes and seconds;				
(c) Two sensitive pressure altimeters calibrated in feet with sub-scale settings, calibrated in hectopascals/millibars, adjustable for any barometric pressure likely to be set during flight. These altimeters must have counter drum-pointer or equivalent presentation.				
(d) An airspeed indicating system with heated pitot tube or equivalent means for preventing malfunctioning due to either condensation or icing including a warning indication of pitot heater failure. The pitot heater failure warning indication requirement does not apply to those aeroplanes with a maximum approved passenger seating configuration of 9 or less or a maximum certificated take-off mass of 5700 kg or less and issued with an individual Certificate of Airworthiness prior to 1 April 1998 (See AMC OPS 1.652(d) & (k)(2));				
(e) A vertical speed indicator;				
(f) A turn and slip indicator;				
(g) An attitude indicator;				
(h) A stabilised direction indicator;				
(i) A means of indicating in the flight crew compartment the outside air temperature calibrated in degrees Celsius (See AMC OPS 1.650 (i) & 1.652(i)); and				
(j) Two independent static pressure systems, except that for propeller driven aeroplanes with maximum certificated take-off mass of 5700 kg or less, one static pressure system and one alternate source of static pressure is allowed.				

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CAR-OPS 1 provision	S	U/S	N/A	Comment
SUBPART K INSTRUMENTS AND EQUIPMENT				
(k) Whenever two pilots are required the second pilot's station shall have separate instruments as follows: (1) A sensitive pressure altimeter calibrated in feet with a sub-scale setting, calibrated in hectopascals/millibars, adjustable for any barometric pressure likely to be set during flight and which may be one of the 2 altimeters required by sub-paragraph (c) above. Not later than 1 April 2002 these altimeters must have counter drum-pointer or equivalent presentation. (2) An airspeed indicating system with heated pitot tube or equivalent means for preventing malfunctioning due to either condensation or icing including a warning indication of pitot heater failure. The pitot heater failure warning indication requirement does not apply to those aeroplanes with a maximum approved passenger seating configuration of 9 or less or a maximum certificated take-off mass of 5700 kg or less and issued with an individual Certificate of Airworthiness prior to 1 April 1998 (See AMC OPS 1.652(d) & (k)(2)); (3) A vertical speed indicator; (4) A turn and slip indicator; (5) An attitude indicator; and (6) A stabilised direction indicator.				
(l) Those aeroplanes with a maximum certificated take-off mass in excess of 5700 kg or having a maximum approved passenger seating configuration of more than 9 seats must be equipped with an additional, standby, attitude indicator (artificial horizon), capable of being used from either pilot's station, that: (1) Is powered continuously during normal operation and, after a total failure of the normal electrical generating system is powered from a source independent of the normal electrical generating system;				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
(2) Provides reliable operation for a minimum of 30 minutes after total failure of the normal electrical generating system, taking into account other loads on the emergency power supply and operational procedures; (3) Operates independently of any other attitude indicating system; (4) Is operative automatically after total failure of the normal electrical generating system; and (5) Is appropriately illuminated during all phases of operation, except for aeroplanes with a maximum certificated take-off mass of 5700 kg or less, equipped with a standby attitude indicator in the left-hand instrument panel.				
(m) In complying with sub-paragraph (l) above, it must be clearly evident to the flight crew when the standby attitude indicator, required by that sub-paragraph, is being operated by emergency power. Where the standby attitude indicator has its own dedicated power supply there shall be an associated indication, either on the instrument or on the instrument panel, when this supply is in use.				
(n) A chart holder in an easily readable position which can be illuminated for night operations.				
(o) If the standby attitude instrument system is certificated according to CS 25 or equivalent, the turn and slip indicators may be replaced by slip indicators.				
(p) Whenever duplicate instruments are required, the requirement embraces separate displays for each pilot and separate selectors or other associated equipment where appropriate;				
(q) All aeroplanes must be equipped with means for indicating when power is not adequately supplied to the required flight instruments; and				
(r) All aeroplanes with compressibility limitations not otherwise indicated by the required airspeed indicators shall be equipped with a Mach number indicator at each pilot's station.				

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CAR-OPS 1 provision	S	U/S	N/A	Comment
SUBPART K INSTRUMENTS AND EQUIPMENT				
(s) An operator shall not conduct IFR or night operations unless the aeroplane is equipped with a headset with boom microphone or equivalent for each flight crew member on flight deck duty and a transmit button on the control wheel for each required pilot. (See IEM OPS 1.650(p)/1.652(s).)				
CAR-OPS 1.653 GNSS				
An operator shall not operate an aeroplane under IFR unless it is equipped with GNSS equipment having the capabilities set out in AMC OPS 1.653 GNSS.				
CAR-OPS 1.655 Additional equipment for single pilot operation under IFR				
An operator shall not conduct single pilot IFR operations unless the aeroplane is equipped with an autopilot with at least altitude hold and heading mode.				
CAR-OPS 1.660 Altitude alerting system				
(a) An operator shall not operate a turbine propeller powered aeroplane with a maximum certificated take-off mass in excess of 5700 kg or having a maximum approved passenger seating configuration of more than 9 seats or a turbojet powered aeroplane unless it is equipped with an altitude alerting system capable of: Alerting the flight crew upon approaching a preselected altitude; and Alerting the flight crew by at least an aural signal, when deviating from a preselected altitude, except for aeroplanes with a maximum certificated take-off mass of 5700 kg or less having a maximum approved passenger seating configuration of more than 9 and first issued with an individual certificate of airworthiness before 1 April 1972.				
CAR-OPS 1.665 Ground proximity warning system and terrain awareness warning system				
(a) An operator shall not operate a turbine powered aeroplane having a maximum certificated take-off mass in excess of 5700 kg or a maximum approved passenger seating configuration of more than 9 unless it is equipped with a ground proximity warning system.				

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CAR-OPS 1 provision	S	U/S	N/A	Comment
SUBPART K INSTRUMENTS AND EQUIPMENT				
(b) The ground proximity warning system must automatically provide, by means of aural signals, which may be supplemented by visual signals, timely and distinctive warning to the flight crew of : (1) excessive sink rate, (2) unsafe terrain clearance, (3) excessive altitude loss after take-off or go-around, (4) unsafe terrain clearance while not in landing configuration;				
(i) gear not locked down; (ii) flaps not in a landing position; and (5) excessive descent below the instrument glide path.				
(c) An operator shall not operate a turbine powered aeroplane having a maximum certificated take-off mass in excess of 15000 kg or having a maximum approved passenger seating configuration of more than 30				
(d) unless it is equipped with a ground proximity warning system that includes a predictive terrain hazard warning function (Terrain Awareness and Warning System – TAWS)				
(e) An operator shall not operate a turbine powered aeroplane having a maximum certificated take-off mass in excess of 5700 kg but not more than 15000 kg or a maximum approved passenger seating configuration of more than 9 but not more than 30 unless it is equipped with a ground proximity warning system that includes a predictive terrain hazard warning function (Terrain Awareness and Warning System – TAWS).				
(f) The terrain awareness and warning system must automatically provide the flight crew, by means of visual and aural signals and a Terrain Awareness Display, with sufficient alerting time to prevent controlled flight into terrain events, and provided a forward looking capability and terrain clearance floor.				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
(g) All turbine-engined aeroplanes of a maximum certificated take-off mass of 5700 kg or less and authorized to carry more than five but not more than nine passengers should be equipped with a ground proximity warning system which has: (1) Warning on excessive descent rate; (2) Warning on excessive altitude loss after take-off or go-around and (3) Warning of unsafe terrain clearance and (4) Forward-looking terrain avoidance function.				
CAR-OPS 1.668 Airborne Collision Avoidance System				
An operator shall not operate a turbine powered aeroplane: Having a MCTOM (maximum certificated take-off mass) in excess of 5700 kg or a MAPSC (maximum approved passenger seating configuration) of more than 19 unless it is equipped with an airborne collision avoidance system (ACAS) II Change 7.0 . From 31 January 2015 such aeroplanes shall be equipped with ACAS II, Change 7.1. Manufactured after 31 December 2012 and having a MCTOM in excess of 5700 kg or a MAPSC of more than 19 unless it is equipped with ACAS II, Change 7.1.				
CAR-OPS 1.670 Airborne weather radar equipment and Winshear warning system				
(a) An operator shall not operate: (1) A pressurised aeroplane; or (2) An unpressurised aeroplane which has a maximum certificated take-off mass of more than 5700 kg; or (3) An unpressurised aeroplane having a maximum approved passenger seating configuration of more than 9 seats after 1 April 1999, unless it is equipped with airborne weather radar equipment whenever such an aeroplane is being operated at night or in				

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CAR-OPS 1 provision	S	U/S	N/A	Comment
SUBPART K INSTRUMENTS AND EQUIPMENT				
instrument meteorological conditions in areas where thunderstorms or other potentially hazardous weather conditions (wind shear), regarded as detectable with airborne weather radar, may be expected to exist along the route.				
(b) For propeller driven pressurised aeroplanes having a maximum certificated take-off mass not exceeding 5700 kg with a maximum approved passenger seating configuration not exceeding 9 seats the airborne weather radar equipment may be replaced by other equipment capable of detecting thunderstorms and other potentially hazardous weather conditions (wind shear), regarded as detectable with airborne weather radar equipment, subject to approval by the Authority.				
(c) All turbo-jet aeroplanes of a maximum certificated take-off mass in excess of 5700 kg or authorized to carry more than nine passengers should be equipped with a forward-looking wind shear warning system capable of; (1) Providing the pilot with a timely aural and visual warning of wind shear ahead of the aircraft, and the information required to permit the pilot to safely commence and continue a missed approach or go-around or to execute an escape manoeuvre if necessary. (2) Providing an indication to the pilot when the limits specified for the certification of automatic landing equipment are being approached, when such equipment is in use.				
CAR-OPS 1.675 Equipment for operations in icing conditions				
(a) An operator shall not operate an aeroplane in expected or actual icing conditions unless it is certificated and equipped to operate in icing conditions.				

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CAR-OPS 1 provision	S	U/S	N/A	Comment
SUBPART K INSTRUMENTS AND EQUIPMENT				
(b) An operator shall not operate an aeroplane in expected or actual icing conditions at night unless it is equipped with a means to illuminate or detect the formation of ice. Any illumination that is used must be of a type that will not cause glare or reflection that would handicap crew members in the performance of their duties.				
CAR-OPS 1.680 Cosmic radiation detection equipment				
An operator shall not operate an aeroplane above 15000 m (49000 ft) unless:				
(a) It is equipped with an instrument to measure and indicate continuously the dose rate of total cosmic radiation being received (i.e. the total of ionizing and neutron radiation of galactic and solar origin) and the cumulative dose on each flight, or				
(b) A system of on-board quarterly radiation sampling acceptable to the authority is established (See AMC OPS 1.680(a)(2)).				
CAR-OPS 1.685 Flight crew interphone system				
An operator shall not operate an aeroplane on which a flight crew of more than one is required unless it is equipped with a flight crew interphone system, including headsets and microphones, not of a handheld type, for use by all members of the flight crew.				
CAR-OPS 1.690 Crew member interphone system				
(a) An operator shall not operate an aeroplane with a maximum certificated take-off mass exceeding 15000 kg or having a maximum approved passenger seating configuration of more than 19 unless it is equipped with a crew member interphone system.				
(b) The crew member interphone system required by this paragraph must: (1) Operate independently of the public address system except for handsets, headsets, microphones, selector switches and signalling devices; (2) Provide a means of two-way communication between the flight crew compartment and:				
(i) Each passenger compartment;				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
(ii) Each galley located other than on a passenger deck level; and (iii) Each remote crew compartment that is not on the passenger deck and is not easily accessible from a passenger compartment; (3) Be readily accessible for use from each of the required flight crew stations in the flight crew compartment; (4) Be readily accessible for use at required cabin crew member stations close to each separate or pair of floor level emergency exits; (5) Have an alerting system incorporating aural or visual signals for use by flight crew members to alert the cabin crew and for use by cabin crew members to alert the flight crew; (6) Have a means for the recipient of a call to determine whether it is a normal call or an emergency call (See AMC OPS 1.690(b)(6)); and (7) Provide on the ground a means of two-way communication between ground personnel and at least two flight crew members. (See IEM OPS 1.690(b)(7)).				
CAR-OPS 1.695 Public address system				
(a) An operator shall not operate an aeroplane with a maximum approved passenger seating configuration of more than 19 unless a public address system is installed.				
(b) The public address system required by this paragraph must: (1) Operate independently of the interphone systems except for handsets, headsets, microphones, selector switches and signalling devices; (2) Be readily accessible for immediate use from each required flight crew member station; (3) For each required floor level passenger				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
emergency exit which has an adjacent cabin crew seat, have a microphone which is readily accessible to the seated cabin crew member, except that one microphone may serve more than one exit, provided the proximity of the exits allows unassisted verbal communication between seated cabin crew members; (4) Be capable of operation within 10 seconds by a cabin crew member at each of those stations in the compartment from which its use is accessible; and (5) Be audible and intelligible at all passenger seats, toilets and cabin crew seats and work stations.				
CAR-OPS 1.700 Cockpit voice recorders–1				
(a) An operator shall not operate an aeroplane which: (1) Is multi-engine turbine powered and has a maximum approved passenger seating configuration of more than 9; or (2) Has a maximum certificated take-off mass over 5700 kg, unless it is equipped with a cockpit voice recorder which, with reference to a time scale, records:				
(i) Voice communications transmitted from or received on the flight deck by radio; (ii) The aural environment of the flight deck, including without interruption, the audio signals received from each boom and mask microphone in use;				
(iii) Voice communications of flight crew members on the flight deck using the aeroplane's interphone system; (iv) Voice or audio signals identifying navigation or approach aids introduced into a headset or speaker; and				
(v) Voice communications of flight crew members on the flight deck using the public address system, if installed.				

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(b) The CVR shall be capable of retaining the data recorded during at least: (1) the preceding 25 hours for aeroplanes with an MCTOM of more than 27 000 kg and first issued with an individual CofA on or after 1 January 2022; or (2) the preceding 2 hours in all other cases				
(c) The cockpit voice recorder must start automatically to record prior to the aeroplane moving under its own power and continue to record until the termination of the flight when the aeroplane is no longer capable of moving under its own power. In addition, depending on the availability of electrical power, the cockpit voice recorder must start to record as early as possible during the cockpit checks prior to engine start at the beginning of the flight until the cockpit checks immediately following engine shutdown at the end of the flight.				
(d) The cockpit voice recorder must have a device to assist in locating that recorder in water.				
CAR-OPS 1.705 Cockpit voice recorders–2				
(a) An operator shall not operate any multi-engined turbine aeroplane which has a maximum certificated take-off mass of 5700 kg or less and a maximum approved passenger seating configuration of more than 9, unless it is equipped with a cockpit voice recorder which records: (1) Voice communications transmitted from or received on the flight deck by radio; (2) The aural environment of the flight deck, including where practicable, without interruption, the audio signals received from each boom and mask microphone in use; (3) Voice communications of flight crew members on the flight deck using the aeroplane's interphone system; (4) Voice or audio signals identifying navigation or approach aids introduced into a headset or speaker; and				

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(5) Voice communications of flight crew members on the flight deck using the public address system, if installed.				
(b) The cockpit voice recorder shall be capable of retaining information recorded during at least the last 30 minutes of its operation.				
(c) The cockpit voice recorder must start to record prior to the aeroplane moving under its own power and continue to record until the termination of the flight when the aeroplane is no longer capable of moving under its own power. In addition, depending on the availability of electrical power, the cockpit voice recorder must start to record as early as possible during the cockpit checks, prior to the flight until the cockpit checks immediately following engine shutdown at the end of the flight.				
(d) The cockpit voice recorder must have a device to assist in locating that recorder in water.				
CAR-OPS 1.710 Cockpit voice recorders–3				
(a) An operator shall not operate any aeroplane with a maximum certificated take-off mass over 5700 kg unless it is equipped with a cockpit voice recorder which records: (1) Voice communications transmitted from or received on the flight deck by radio; (2) The aural environment of the flight deck; (3) Voice communications of flight crew members on the flight deck using the aeroplane's interphone system; (4) Voice or audio signals identifying navigation or approach aids introduced into a headset or speaker; and (5) Voice communications of flight crew members on the flight deck using the public address system, if installed.				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
(b) The cockpit voice recorder shall be capable of retaining information recorded during at least the last 30 minutes of its operation.				
(c) The cockpit voice recorder must start to record prior to the aeroplane moving under its own power and continue to record until the termination of the flight when the aeroplane is no longer capable of moving under its own power.				
(d) The cockpit voice recorder must have a device to assist in locating that recorder in water.				
CAR-OPS 1.715 Flight data recorders–1				
(a) An operator shall not operate any aeroplane which: (1) Is multi-engine turbine powered and has a maximum approved passenger seating configuration of more than 9; or (2) Has a maximum certificated take-off mass over 5700 kg, unless it is equipped with a flight data recorder that uses a digital method of recording and storing data and a method of readily retrieving that data from the storage medium is available.				
(b) The flight data recorder shall be capable of retaining the data recorded during at least the last 25 hours of its operation except that, for those aeroplanes with a maximum certificated take-off mass of 5700 kg or less, this period may be reduced to 10 hours.				
(c) The flight data recorder must, with reference to a timescale, record: (1) The parameters listed in Tables A1 or A2 of Appendix 1 to CAR-OPS 1.715 as applicable; (2) For those aeroplanes with a maximum certificated take-off mass over 27000 kg, the additional parameters listed in Table B of Appendix 1 to CAR-OPS 1.715; (3) For aeroplanes specified in (a) above, the flight data recorder must record any dedicated parameters relating to novel or unique design or operational				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
characteristics of the aeroplane as determined by the Authority during type or supplemental type certification; and (4) For aeroplanes equipped with electronic display system the parameters listed in Table C of Appendix 1 to CAR-OPS 1.715., except that, for aeroplanes first issued with an individual Certificate of Airworthiness before 20 August 2002 those parameters for which: The sensor is not available; or				
(ii) The aeroplane system or equipment generating the data needs to be modified; or (iii) The signals are incompatible with the recording system; do not need to be recorded if acceptable to the Authority.				
(d) Data must be obtained from aeroplane sources which enable accurate correlation with information displayed to the flight crew.				
(e) The flight data recorder must start automatically to record the data prior to the aeroplane being capable of moving under its own power and must stop automatically after the aeroplane is incapable of moving under its own power.				
(f) The flight data recorder must have a device to assist in locating that recorder in water.				
(g) Aeroplanes first issued with an individual Certificate of Airworthiness on or after 1 April 1998, but not later than 1 April 2001 may not be required to comply with CAR-OPS 1.715(c) if approved by the Authority, provided that: (1) Compliance with CAR-OPS 1.715(c) cannot be achieved without extensive modification (See CAR-OPS 1.715(g)) to the aeroplane systems and equipment other than the flight data recorder system; and (2) The aeroplane complies with CAR-OPS 1.720(c) except that parameter 15b in Table A of Appendix 1 to CAR-OPS 1.720 need not to be recorded.				
CAR-OPS 1.720 Flight data recorders–2				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
(a) An operator shall not operate any aeroplane first issued with an individual certificate of airworthiness on or after 1 June 1990 up to and including 31 March 1998 which has a maximum certificated take-off mass over 5700 kg unless it is equipped with a flight data recorder that uses a digital method of recording and storing data and a method of readily retrieving that data from the storage medium is available.				
(b) The flight data recorder shall be capable of retaining the data recorded during at least the last 25 hours of its operation.				
(c) The flight data recorder must, with reference to a timescale, record: (1) The parameters listed in Table A of Appendix 1 to CAR-OPS 1.720; and (2) For those aeroplanes with a maximum certificated take-off mass over 27000 kg the additional parameters listed in Table B of Appendix 1 to CAR-OPS 1.720.				
(d) For those aeroplanes having a maximum certificated take-off mass of 27000 kg or below, if acceptable to the Authority, parameters 14 and 15b of Table A of Appendix 1 to CAR-OPS 1.720 need not be recorded, when any of the following conditions are met: The sensor is not readily available, (2) Sufficient capacity is not available in the flight recorder system, (3) A change is required in the equipment that generates the data.				
(e) For those aeroplanes having a maximum certificated take-off mass over 27000 kg, if acceptable to the Authority, the following parameters need not be recorded: 15b of Table A of Appendix 1 to CAR-OPS 1.720, and 23, 24, 25, 26, 27, 28, 29, 30 and 31 of Table B of Appendix 1, if any of the following conditions are met: The sensor is not readily available,				

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(2) Sufficient capacity is not available in the flight data recorder system, (3) A change is required in the equipment that generates the data, (4) For navigational data (NAV frequency selection, DME distance, latitude, longitude, ground speed and drift) the signals are not available in digital form.				
(f) Individual parameters that can be derived by calculation from the other recorded parameters, need not to be recorded if acceptable to the Authority.				
(g) Data must be obtained from aeroplane sources which enable accurate correlation with information displayed to the flight crew.				
(h) The flight data recorder must start to record the data prior to the aeroplane being capable of moving under its own power and must stop after the aeroplane is incapable of moving under its own power.				
(i) The flight data recorder must have a device to assist in locating that recorder in water.				
CAR-OPS 1.725 Flight data recorders–3				
(a) An operator shall not operate any turbine-engined aeroplane first issued with an individual Certificate of Airworthiness, before 1 June 1990 which has a maximum certificated take-off mass over 5700 kg unless it is equipped with a flight data recorder that uses a digital method of recording and storing data and a method of readily retrieving that data from the storage medium is available.				
(b) The flight data recorder shall be capable of retaining the data recorded during at least the last 25 hours of its operation.				
(c) The flight data recorder must, with reference to a timescale, record: (1) The parameters listed in Table A of Appendix 1 to CAR-OPS 1.725. (2) For those aeroplanes with a maximum certificated take-off mass over 27000 kg that are of a type first type certificated after 30 September 1969,				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
the additional parameters from 6 to 15b of Table B of Appendix 1 to CAR-OPS 1.725 of this paragraph. The following parameters need not be recorded, if acceptable to the Authority: 13, 14 and 15b in Table B of Appendix 1 to CAR-OPS 1.725 when any of the following conditions are met:				
(i) The sensor is not readily available, (ii) Sufficient capacity is not available in the flight recorder system,				
(iii) A change is required in the equipment that generates the data; and (3) When sufficient capacity is available on a flight recorder system, the sensor is readily available and a change is not required in the equipment that generates the data: (i) For aeroplanes first issued with an individual Certificate of Airworthiness on or after 1 January 1989, with a maximum certificated take off mass of over 5700 kg but not more than 27000 kg, parameters 6 to 15b of Table B of Appendix 1 to CAR-OPS 1.725; and				
(ii) For aeroplanes first issued with an individual Certificate of Airworthiness on or after 1 January 1987, with a maximum certificated take off mass of over 27000 kg the remaining parameters of Table B of Appendix 1 to CAR-OPS 1.725 .				
(d) Individual parameters that can be derived by calculation from the other recorded parameters, need not to be recorded if acceptable to the Authority.				
(e) Data must be obtained from aircraft sources which enable accurate correlation with information displayed to the flight crew.				
(f) The flight data recorder must start to record the data prior to the aeroplane being capable of moving under its own power and must stop after the aeroplane is incapable of moving under its own power.				
(g) The flight data recorder must have a device to assist in locating that recorder in water.				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
CAR-OPS 1.727 Combination Recorder				
(a) Compliance with Cockpit Voice recorder and flight data recorder requirements may be achieved by: (1) One combination recorder if the aeroplane has to be equipped with a cockpit voice recorder or with a flight data recorder only; or (2) One combination recorder if the aeroplane with a maximum certificated take-off mass of 5700 kg or less has to be equipped with a cockpit voice recorder and a flight data recorder; or (3) Two combination recorders if the aeroplane with a maximum take-off mass over 5700 kg has to be equipped with a cockpit voice recorder and a flight data recorder.				
(b) A combination recorder is a flight recorder that records: (1) all voice communications and aural environment required by the relevant cockpit voice recorder paragraph; and (2) all parameters required by the relevant flight data recorder paragraph, with the same specifications required by those paragraphs.				
CAR-OPS 1.728 Additional Equipment for location of Aircraft in distress				
The following aeroplanes shall be equipped with robust and automatic means to accurately determine, following an accident where the aeroplane is severely damaged, the location of the point of end of flight:				
(1) all aeroplanes with an MCTOM of more than 27000 kg, with an MOPSC of more than 19 and first issued with an individual CofA on or after 1 January 2023; and				
(2) all aeroplanes with an MCTOM of more than 45 500 kg and first issued with an individual CofA on or after 1 January 2023.				
CAR-OPS 1.730 Seats, seat safety belts, harnesses and child restraint devices				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
(a) An operator shall not operate an aeroplane unless it is equipped with: (1) A seat or berth for each person who is aged two years or more; (2) A safety belt, with or without a diagonal shoulder strap, or a safety harness for use in each passenger seat for each passenger aged 2 years or more; (3) A child restraint device, acceptable to the Authority, for each infant (See AC OPS 1.730 (a) (3); (4) Except as provided in sub-paragraph (b) below, a safety belt with shoulder harness for each flight crew seat and for any seat alongside a pilot's seat incorporating a device which will automatically restrain the occupant's torso in the event of rapid deceleration; (5) Except as provided in sub-paragraph (b) below, a safety belt with shoulder harness for each cabin crew seat and observer's seats. However, this requirement does not preclude use of passenger seats by cabin crew members carried in excess of the required cabin crew complement; and (6) Seats for cabin crew members located near required floor level emergency exits except that, if the emergency evacuation of passengers would be enhanced by seating cabin crew members elsewhere, other locations are acceptable. The seats shall be forward or rearward facing within 15° of the longitudinal axis of the aeroplane.				
(b) All safety belts with shoulder harness must have a single point release.				
(c) A safety belt with a diagonal shoulder strap for aeroplanes with a maximum certificated take-off mass not exceeding 5700 kg or a safety belt for aeroplanes with a maximum certificated take-off mass not exceeding 2 730 kg may be permitted in place of a safety belt with shoulder harness if it is not reasonably practicable to fit the latter.				
CAR-OPS 1.731 Fasten Seat belt and No Smoking signs				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
An operator shall not operate an aeroplane in which all passenger seats are not visible from the flight deck, unless it is equipped with a means of indicating to all passengers and cabin crew when seat belts shall be fastened and when smoking is not allowed.				
CAR-OPS 1.735 Internal doors and curtains				
An operator shall not operate an aeroplane unless the following equipment is installed:				
(a) In an aeroplane with a maximum approved passenger seating configuration of more than 19 passengers, a door between the passenger compartment and the flight deck compartment with a placard 'crew only' and a locking means to prevent passengers from opening it without the permission of a member of the flight crew;				
(b) A means for opening each door that separates a passenger compartment from another compartment that has emergency exit provisions. The means for opening must be readily accessible;				
(c) If it is necessary to pass through a doorway or curtain separating the passenger cabin from other areas to reach any required emergency exit from any passenger seat, the door or curtain must have a means to secure it in the open position;				
(d) A placard on each internal door or adjacent to a curtain that is the means of access to a passenger emergency exit, to indicate that it must be secured open during take off and landing; and				
(e) A means for any member of the crew to unlock any door that is normally accessible to passengers and that can be locked by passengers.				
CAR-OPS 1.740 Placards				
An operator shall not operate an aeroplane unless the following placards are installed;				
(a) Every exit from the aircraft shall be marked with the words "Exit" and "Emergency Exit" in both English and Arabic script, or with universal symbolic exit signs.				
(b) Every exit from and to the aircraft shall be marked with instructions in English and Arabic or with universal symbolic exit signs to indicate the correct method of opening the exit. The markings shall be placed on or near the inside				

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surface of the door or other closure of the exit and, if it is operable, from the outside of the aircraft on or near the exterior surface.				
(c) Every safety related placards intended to be used by passengers and external emergency evacuation crew shall be in both Arabic and English scripts or with universal symbolic signs. Bilingual placards shall meet the applicable airworthiness requirements.				
CAR-OPS 1.745 First-Aid Kits				
(a) An operator shall not operate an aeroplane unless it is equipped with first-aid kits, readily accessible for use, to the following scale: Refer to CAR-OPS 1				
(b) An operator shall ensure that first-aid kits are: (1) Inspected periodically to confirm, to the extent possible, that contents are maintained in the condition necessary for their intended use; and (2) Replenished at regular intervals, in accordance with instructions contained on their labels, or as circumstances warrant.				
CAR-OPS 1.750 Universal Precaution Kit				
Aeroplanes which are required to carry at least one cabin crew member as part of the operating crew, shall be equipped with at least one universal precaution kit (two for aeroplanes authorized to carry more than 250 passengers) for the use of cabin crew members in managing incidents of ill health associated with a case of suspected communicable disease, or in the case of illness involving contact with body fluids, such as blood, urine, vomit and faeces and to protect the cabin crew members who are assisting potentially infectious cases of suspected communicable disease.				
CAR-OPS 1.755 Emergency Medical Kit				
(a) An operator shall not operate an aeroplane with a maximum approved passenger seating configuration of more than 30 seats unless it is equipped with an emergency medical kit if any point on the planned route is more than 60 minutes flying time (at normal cruising speed) from an aerodrome				

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at which qualified medical assistance could be expected to be available.				
(b) The commander shall ensure that drugs or Physchoactive substances are not administered except by qualified doctors, nurses or similarly qualified personnel.				
(c) Conditions for carriage (1) The emergency medical kit must be dust and moisture proof and shall be carried under security conditions, where practicable, on the flight deck; and (2) An operator shall ensure that emergency medical kits are:				
(i) Inspected periodically to confirm, to the extent possible, that the contents are maintained in the condition necessary for their intended use; and				
(ii) Replenished at regular intervals, in accordance with instructions contained on their labels, or as circumstances warrant.				
CAR-OPS 1.756 Automated External Defibrillators				
Operators shall determine the need for the carriage of AEDs on the basis of a risk assessment taking into account the particular needs of the operation. When AEDs are carried, an AED programme shall be established by the operator to manage all aspects of their use				
CAR-OPS 1.760 First-aid oxygen				
(a) An operator shall not operate a pressurised aeroplane, above 25000 ft, when a cabin crew member is required to be carried, unless it is equipped with a supply of undiluted oxygen for passengers who, for physiological reasons, might require oxygen following a cabin depressurisation. The amount of oxygen shall be calculated using an average flow rate of at least 3 litres Standard Temperature Pressure Dry (STPD)/minute/person and shall be sufficient for the remainder of the flight after cabin depressurisation when the cabin altitude exceeds 8000 ft but does not exceed 15000 ft, for at least 2% of the passengers carried, but in no case for less than one person. There shall be a sufficient				

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number of dispensing units, but in no case less than two, with a means for cabin crew to use the supply. The dispensing units may be of a portable type.				
(b) The amount of first-aid oxygen required for a particular operation shall be determined on the basis of cabin pressure altitudes and flight duration, consistent with the operating procedures established for each operation and route.				
(c) The oxygen equipment provided shall be capable of generating a mass flow to each user of at least four litres per minute, STPD. Means may be provided to decrease the flow to not less than two litres per minute, STPD, at any altitude.				
CAR-OPS 1.765 - Reserved				
CAR-OPS 1.770 Supplemental oxygen – pressurised aeroplanes				
(a) General (1) An operator shall not operate a pressurised aeroplane at pressure altitudes above 10000 ft unless supplemental oxygen equipment, capable of storing and dispensing the oxygen supplies required by this paragraph, is provided. (2) The amount of supplemental oxygen required shall be determined on the basis of cabin pressure altitude, flight duration and the assumption that a cabin pressurisation failure will occur at the pressure altitude or point of flight that is most critical from the standpoint of oxygen need, and that, after the failure, the aeroplane will descend in accordance with emergency procedures specified in the Aeroplane Flight Manual to a safe altitude for the route to be flown that will allow continued safe flight and landing. (3) Following a cabin pressurisation failure, the cabin pressure altitude shall be considered the same as the aeroplane pressure altitude, unless it is demonstrated to the Authority that no probable failure of the cabin or pressurisation system will result in a cabin pressure altitude equal to the aeroplane pressure altitude. Under these circumstances, the demonstrated maximum cabin				

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pressure altitude may be used as a basis for determination of oxygen supply.				
(b) Oxygen equipment and supply requirements (1) Flight crew members				
(i) Each member of the flight crew on flight deck duty shall be supplied with supplemental oxygen in accordance with Appendix 1. If all occupants of flight deck seats are supplied from the flight crew source of oxygen supply then they shall be considered as flight crew members on flight deck duty for the purpose of oxygen supply. Flight deck seat occupants, not supplied by the flight crew source, are to be considered as passengers for the purpose of oxygen supply. (ii) Flight crew members, not covered by sub-paragraph (b)(1)(i) above, are to be considered as passengers for the purpose of oxygen supply.				
(iii) Oxygen masks shall be located so as to be within the immediate reach of flight crew members whilst at their assigned duty station. (iv) Oxygen masks for use by flight crew members in pressurised aeroplanes operating at pressure altitudes above 25000 ft, shall be a quick donning type of mask. (2) Cabin crew members, additional crew members and passengers				
(i) Cabin crew members and passengers shall be supplied with supplemental oxygen in accordance with Appendix 1, except when sub-paragraph (v) below applies. Cabin crew members carried in addition to the minimum number of cabin crew members required, and additional crew members, shall be considered as passengers for the purpose of oxygen supply. (ii) Aeroplanes intended to be operated at pressure altitudes above 25000 ft shall be provided sufficient spare outlets and masks and/or sufficient portable				

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oxygen units with masks for use by all required cabin crew members. The spare outlets and/or portable oxygen units are to be distributed evenly throughout the cabin to ensure immediate availability of oxygen to each required cabin crew member regardless of his location at the time of cabin pressurisation failure.				
(iii) Aeroplanes intended to be operated at pressure altitudes above 25000 ft shall be provided an oxygen dispensing unit connected to oxygen supply terminals immediately available to each occupant, wherever seated. The total number of dispensing units and outlets shall exceed the number of seats by at least 10%. The extra units are to be evenly distributed throughout the cabin. (iv) Aeroplanes intended to be operated at pressure altitudes above 25000 ft or which, if operated at or below 25000 ft, cannot descend safely within 4 minutes to 13000 ft, and for which the individual certificate of airworthiness was first issued on or after 9 November 1998, shall be provided with automatically deployable oxygen equipment immediately available to each occupant, wherever seated. The total number of dispensing units and outlets shall exceed the number of seats by at least 10%. The extra units are to be evenly distributed throughout the cabin.				
(v) The oxygen supply requirements, as specified in Appendix 1, for aeroplanes not certificated to fly above 25000 ft, may be reduced to the entire flight time between 10000 ft and 13000 ft cabin pressure altitudes for all required cabin crew members and for at least 10% of the passengers if, at all points along the route to be flown, the aeroplane is able to descend safely within 4 minutes to a cabin pressure altitude of 13000 ft.				
CAR-OPS 1.775 Supplemental oxygen – Non-pressurised aeroplanes				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
(a) General (1) An operator shall not operate a non-pressurised aeroplane at altitudes above 10000 ft unless supplemental oxygen equipment, capable of storing and dispensing the oxygen supplies required, is provided. (2) The amount of supplemental oxygen for sustenance required for a particular operation shall be determined on the basis of flight altitudes and flight duration, consistent with the operating procedures established for each operation in the Operations Manual and with the routes to be flown, and with the emergency procedures specified in the Operations Manual. (3) An aeroplane intended to be operated at pressure altitudes above 10000 ft shall be provided with equipment capable of storing and dispensing the oxygen supplies required.				
(b) Oxygen supply requirements (1) Flight crew members. Each member of the flight crew on flight deck duty shall be supplied with supplemental oxygen in accordance with Appendix 1. If all occupants of flight deck seats are supplied from the flight crew source of oxygen supply then they shall be considered as flight crew members on flight deck duty for the purpose of oxygen supply. (2) Cabin crew members, additional crew members and passengers. Cabin crew members and passengers shall be supplied with oxygen in accordance with Appendix 1. Cabin crew members carried in addition to the minimum number of cabin crew members required, and additional crew members, shall be considered as passengers for the purpose of oxygen supply.				
CAR-OPS 1.780 Crew Protective Breathing Equipment				
(a) An operator shall not operate a pressurised aeroplane or, after 1 April 2000, an unpressurised aeroplane with a maximum certificated take-off mass exceeding 5700 kg or having a maximum				

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approved seating configuration of more than 19 seats unless: (1) It has equipment to protect the eyes, nose and mouth of each flight crew member while on flight deck duty and to provide oxygen for a period of not less than 15 minutes. The supply for Protective Breathing Equipment (PBE) may be provided by the supplemental oxygen required by CAR-OPS 1.770(b)(1) or CAR-OPS 1.775(b)(1). In addition, when the flight crew is more than one and a cabin crew member is not carried, portable PBE must be carried to protect the eyes, nose and mouth of one member of the flight crew and to provide breathing gas for a period of not less than 15 minutes; and (2) It has sufficient portable PBE to protect the eyes, nose and mouth of all required cabin crew members and to provide breathing gas for a period of not less than 15 minutes.				
(b) PBE intended for flight crew use must be conveniently located on the flight deck and be easily accessible for immediate use by each required flight crew member at their assigned duty station.				
(c) PBE intended for cabin crew use must be installed adjacent to each required cabin crew member duty station.				
(d) An additional, easily accessible portable PBE must be provided and located at or adjacent to the hand fire extinguishers required by CAR-OPS 1.790(c) and (d) except that, where the fire extinguisher is located inside a cargo compartment, the PBE must be stowed outside but adjacent to the entrance to that compartment.				
(e) PBE while in use must not prevent communication where required by CAR-OPS 1.313, CAR-OPS 1.685, CAR-OPS 1.690, CAR-OPS 1.810 and CAR-OPS 1.850.				
CAR-OPS 1.785 HUD or Equivalent Displays				
An operator shall not operate an aeroplane equipped with a HUD or equivalent displays, EVS, SVS or CVS, or any combination of those systems into a hybrid system unless: (a) An approval has been issued by the Authority for				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
the operational use of such displays, (b) The equipment meets the appropriate airworthiness certification requirements; (c) The operator has carried out a safety risk assessment of the operations supported by the HUD or equivalent displays, EVS, SVS or CVS; (d) The operator has established and documented the procedures for the use of, and training requirements for, a HUD or equivalent displays, EVS, SVS or CVS (e) The criteria for the use of such systems for the safe operation of an aeroplane as described in Appendix 1 to CAR-OPS 1.785 HUD, VS or Equivalent is complied with as applicable.				
CAR-OPS 1.790 Fire extinguishers				
(a) An operator shall not operate an aeroplane unless hand fire extinguishers are provided for use in crew, passenger and, as applicable, cargo compartments and galleys in accordance with the following:				
(i) The type and quantity of extinguishing agent must be suitable for the kinds of fires likely to occur in the compartment where the extinguisher is intended to be used and, for personnel compartments, must minimise the hazard of toxic gas concentration;				
(ii) At least one hand fire extinguisher, containing Halon 1211 (bromochlorodifluoro-methane, CBrClF2), or equivalent as the extinguishing agent, must be conveniently located on the flight deck for use by the flight crew; (iii) At least one hand fire extinguisher must be located in, or readily accessible for use in, each galley not located on the main passenger deck;				
(iv) At least one readily accessible hand fire extinguisher must be available for use in each Class A or Class B cargo or baggage compartment and in each Class E cargo compartment that is accessible to crew members in flight; and				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
(v) At least the following number of hand fire extinguishers must be conveniently located in the passenger compartment(s): Refer to CAR-OPS 1 When two or more extinguishers are required, they must be evenly distributed in the passenger compartment.				
(vi) At least one of the required fire extinguishers located in the passenger compartment of an aeroplane with a maximum approved passenger seating configuration of at least 31, and not more than 60, and at least two of the fire extinguishers located in the passenger compartment of an aeroplane with a maximum approved passenger seating configuration of 61 or more must contain Halon 1211 (bromochlorodi-fluoromethane, CBrCIF2), or equivalent as the extinguishing agent.				
(b) An operator shall ensure that any agent used in a built-in fire extinguisher for each lavatory disposal receptacle for towels, paper or waste in an aeroplane for which the individual certificate of airworthiness is first issued on or after 31 December 2011 and any extinguishing agent used in a portable fire extinguisher in an aeroplane for which the individual certificate of airworthiness is first issued on or after 18th May 2019:				
(i) meets the applicable minimum performance requirements of the State of Registry acceptable to the GCAA; and (ii) is not of a type listed in the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer as it appears in the Eighth Edition of the Handbook for the Montreal Protocol on Substances that Deplete the Ozone Layer, Annex A, Group II.				
CAR-OPS 1.795 Crash axes and crowbars				
(a) An operator shall not operate an aeroplane with a maximum certificated take-off mass exceeding 5700 kg or having a maximum approved passenger seating configuration of more than 9 seats unless it is equipped with at least one crash axe or crowbar located on the flight deck.				
(b) Crash axes and crowbars located in the passenger compartment must not be visible to passengers.				

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CAR-OPS 1.800 Marking of break-in points				
An operator shall ensure that, if areas of the fuselage suitable for break-in by rescue crews in emergency are marked on an aeroplane, such areas shall be marked as shown below. The colour of the markings shall be red or yellow, and if necessary they shall be outlined in white to contrast with the background. If the corner markings are more than 2 metres apart, intermediate lines 9 cm x 3 cm shall be inserted so that there is no more than 2 metres between adjacent marks.				
CAR-OPS 1.805 Means for emergency evacuation				
(a) An operator shall not operate an aeroplane with passenger emergency exit sill heights: (1) Which are more than 1·83 metres (6 feet) above the ground with the aeroplane on the ground and the landing gear extended; or (2) Which would be more than 1·83 metres (6 feet) above the ground after the collapse of, or failure to extend of, one or more legs of the landing gear and for which a Type Certificate was first applied for on or after 1 April 2000, unless it has equipment or devices available at each exit, where sub-paragraphs (1) or (2) apply, to enable passengers and crew to reach the ground safely in an emergency.				
(b) Such equipment or devices need not be provided at overwing exits if the designated place on the aeroplane structure at which the escape route terminates is less than 1·83 metres (6 feet) from the ground with the aeroplane on the ground, the landing gear extended, and the flaps in the take off or landing position, whichever flap position is higher from the ground.				
(c) In aeroplanes required to have a separate emergency exit for the flight crew and: (1) For which the lowest point of the emergency exit is more than 1·83 metres (6 feet) above the ground with the landing gear extended; or, (2) For which a Type Certificate was first applied for on or after 1 April 2000, would be more than 1·83				

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metres (6 ft) above the ground after the collapse of, or failure to extend of, one or more legs of the landing gear, there must be a device to assist all members of the flight crew in descending to reach the ground safely in an emergency.				
CAR-OPS 1.810 Megaphones				
(a) An operator shall not operate an aeroplane with a maximum approved passenger seating configuration of more than 60 and carrying one or more passengers unless it is equipped with portable battery-powered megaphones readily accessible for use by crew members during an emergency evacuation, to the following scales: (1) For each passenger deck: Refer to CAR-OPS 1 (2) For aeroplanes with more than one passenger deck, in all cases when the total passenger seating configuration is more than 60, at least 1 megaphone is required.				
CAR-OPS 1.815 Emergency lighting				
(a) An operator shall not operate a passenger carrying aeroplane which has a maximum approved passenger seating configuration of more than 9 unless it is provided with an emergency lighting system having an independent power supply to facilitate the evacuation of the aeroplane. The emergency lighting system must include: (1) For aeroplanes which have a maximum approved passenger seating configuration of more than 19:				
(i) Sources of general cabin illumination;				
(ii) Internal lighting in floor level emergency exit areas; and (iii) Illuminated emergency exit marking and locating signs.				
(iv) For aeroplanes for which the application for the type certificate or equivalent was filed before 1 May 1972, and when flying by night, exterior emergency lighting at all overwing exits, and at exits where descent assist means are required.				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
(v) For aeroplanes for which the application for the type certificate or equivalent was filed on or after 1 May 1972, and when flying by night, exterior emergency lighting at all passenger emergency exits.				
(vi) For aeroplanes for which the type certificate was first issued on or after 1 January 1958, floor proximity emergency escape path marking system in the passenger compartment(s). (2) For aeroplanes which have a maximum approved passenger seating configuration of 19 or less and are certificated to CS-23 or CS–25:				
(i) Sources of general cabin illumination;				
(ii) Internal lighting in emergency exit areas; and (iii) Illuminated emergency exit marking and locating signs. (3) For aeroplanes which have a maximum approved passenger seating configuration of 19 or less and are not certificated to CS–23 or CS–25, sources of general cabin illumination.				
(b) An operator shall not, by night, operate a passenger carrying aeroplane which has a maximum approved passenger seating configuration of 9 or less unless it is provided with a source of general cabin illumination to facilitate the evacuation of the aeroplane. The system may use dome lights or other sources of illumination already fitted on the aeroplane and which are capable of remaining operative after the aeroplane's battery has been switched off.				
CAR-OPS 1.820 Emergency Locator Transmitter				
An operator shall not operate an aeroplane with 19 passengers seat or more unless it is equipped with two ELT in which, one shall be automatic. All aeroplanes authorized to carry less than 19 passengers shall be equipped with at least one automatic ELT. An operator shall not operate aeroplane unless it is equipped with any type of ELT capable of transmitting on 121.5 MHz and 406 MHz.				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
(d) An operator shall ensure that all ELTs that are capable of transmitting on 406 MHz shall be coded in accordance with ICAO Annex 10 and registered with the national agency responsible for initiating Search and Rescue or another nominated agency for Coding registration refer to TRA (Telecommunication Regulation Authority).				
CAR-OPS 1.825 Life Jackets				
(a) Land aeroplanes. An operator shall not operate a land aeroplane: (1) When flying over water and at a distance of more than 50 nautical miles from the shore; or (2) When taking off or landing at an aerodrome where the take-off or approach path is so disposed over water that in the event of a mishap there would be a likelihood of a ditching, unless it is equipped with life jackets equipped with a survivor locator light, for each person on board. Each life jacket must be stowed in a position easily accessible from the seat or berth of the person for whose use it is provided. Life jackets for infants may be substituted by other approved flotation devices equipped with a survivor locator light.				
(b) Seaplanes and amphibians. An operator shall not operate a seaplane or an amphibian on water unless it is equipped with life jackets equipped with a survivor locator light, for each person on board. Each life jacket must be stowed in a position easily accessible from the seat or berth of the person for whose use it is provided. Life jackets for infants may be substituted by other approved flotation devices equipped with a survivor locator light.				
CAR-OPS 1.830 Extended overwater flights				
(a) On overwater flights, an operator shall not operate an aeroplane at a distance away from land, which is suitable for making an emergency landing, greater than that corresponding to: (1) 120 minutes at cruising speed or 400 nautical miles, whichever is the lesser, for aeroplanes capable of continuing the flight to an aerodrome with the critical power unit(s) becoming inoperative at any point along the route or planned diversions; or				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
(2) 30 minutes at cruising speed or 100 nautical miles, whichever is the lesser, for all other aeroplanes, unless the equipment specified in sub-paragraphs (b) and (c) below is carried.				
(b) Sufficient life-rafts to carry all persons on board. Unless excess rafts of enough capacity are provided, the buoyancy and seating capacity beyond the rated capacity of the rafts must accommodate all occupants of the aeroplane in the event of a loss of one raft of the largest rated capacity. The life-rafts shall be equipped with: (1) A survivor locator light; and (2) Life saving equipment including means of sustaining life as appropriate to the flight to be undertaken (see AMC OPS 1.830(b)(2)); and				
(c) At least two survival Emergency Locator Transmitters (ELT(S)) capable of transmitting on the distress frequencies prescribed in ICAO Annex 10, Volume V, Chapter 2. (See AC OPS 1.820)				
(d) All aeroplanes of a maximum certificated take-off mass of over 27000 kg and with an MOPSC of more than 19 and all aeroplanes with an MCTOM of more than 45500 kg involved in commercial operations shall be equipped with a securely attached underwater locating device operating at a frequency of 8.8 kHz ± 1 kHz, unless: (1) The aeroplane is operated over routes on which it is not at a distance of more than 180 NM from the shore or (2) The aeroplane is equipped with an automatic mean to determine the location of the point of end of flight within 6 NM accuracy (following an accident where the aeroplane is severely damaged).				
CAR-OPS 1.835 Survival equipment				
An operator shall not operate an aeroplane across areas in which search and rescue would be especially difficult unless it is equipped with the following:				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
(a) Signalling equipment to make the pyrotechnical distress signals described in ICAO Annex 2;				
(b) At least one ELT(S) capable of transmitting on the distress frequencies prescribed in ICAO Annex 10, Volume V, Chapter 2 (See AC OPS 1.820); and				
(c) Additional survival equipment for the route to be flown taking account of the number of persons on board (See AMC OPS 1.835 (c)), except that the equipment specified in sub-paragraI(c) need not be carried when the aeroplane either: (1) Remains within a distance from an area where search and rescue is not especially difficult corresponding to:				
(i) 120 minutes at the one engine inoperative cruising speed for aeroplanes capable of continuing the flight to an aerodrome with the critical power unit(s) becoming inoperative at any point along the route or planned diversions; or				
(ii) 30 minutes at cruising speed for all other aeroplanes, or, (2) For aeroplanes certificated to CS–25 or equivalent, no greater distance than that corresponding to 90 minutes at cruising speed from an area suitable for making an emergency landing.				
CAR-OPS 1.840 Seaplanes and amphibians – Miscellaneous equipment				
(a) An operator shall not operate a seaplane or an amphibian on water unless it is equipped with: (1) A sea anchor and other equipment necessary to facilitate mooring, anchoring or manoeuvring the aircraft on water, appropriate to its size, weight and handling characteristics; and (2) Equipment for making the sound signals prescribed in the International Regulations for preventing collisions at sea, where applicable.				
SUBPART L COMMUNICATION AND NAVIGATION EQUIPMENT				
CAR-OPS 1.845 General introduction				
(a) An operator shall ensure that a flight does not commence unless the communication and				

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navigation equipment required under this Subpart is: (1) Approved and installed in accordance with the requirements applicable to them, including the minimum performance standard and the operational and airworthiness requirements; (2) Installed such that the failure of any single unit required for either communication or navigation purposes, or both, will not result in the failure of another unit required for communications or navigation purposes. (3) In operable condition for the kind of operation being conducted except as provided in the MEL (CAR-OPS 1.030 refers); and (4) So arranged that if equipment is to be used by one flight crew member at his station during flight it must be readily operable from his station. When a single item of equipment is required to be operated by more than one flight crew member it must be installed so that the equipment is readily operable from any station at which the equipment is required to be operated.				
(b) Communication and navigation equipment minimum performance standards are those prescribed in the applicable Technical Standard Orders (TSO) unless different performance standards are prescribed in the operational or airworthiness codes. Communication and navigation equipment complying with design and performance specifications other than TSO on the date of CAR–OPS implementation may remain in service, or be installed, unless additional requirements are prescribed in this Subpart. Communication and navigation equipment which has already been approved does not need to comply with a revised TSO or a revised specification, other than TSO, unless a retroactive requirement is prescribed.				
(c) An Operator shall obtain operational approval before operating in areas where compliance with Performance Based Communication and Surveillance (PBCS) requirements is specified (see AMC 1.845(c))				
CAR-OPS 1.850 Radio Equipment				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
(a) An operator shall not operate an aeroplane unless it is equipped with radio required for the kind of operation being conducted.				
(b) Where two independent (separate and complete) radio systems are required under this Subpart, each system must have an independent antenna installation except that, where rigidly supported non-wire antennae or other antenna installations of equivalent reliability are used, only one antenna is required.				
(c) The radio communication equipment required to comply with paragraph (a) above must also provide for communications on the aeronautical emergency frequency 121·5 MHz.				
CAR-OPS 1.855 Audio Selector Panel				
An operator shall not operate an aeroplane under IFR unless it is equipped with an audio selector panel accessible to each required flight crew member. CAR-OPS 1.860 Radio equipment for VFR routes navigated by reference to visual landmarks An operator shall not operate an aeroplane under VFR over routes that can be navigated by reference to visual landmarks, unless it is equipped with the radio communication equipment necessary under normal operating conditions to fulfil the following:				
(a) Communicate with appropriate ground stations;				
(b) Communicate with appropriate air traffic control facilities from any point in controlled airspace within which flights are intended; and				
(c) Receive meteorological information;				
CAR-OPS 1.865 Communication and Navigation equipment for operations under IFR, or under VFR over routes not navigated by reference to visual landmarks				
(a) An operator shall not operate an aeroplane under IFR, or under VFR over routes that cannot be navigated by reference to visual landmarks, unless the aeroplane is equipped with radio communication and SSR transponder and navigation equipment in accordance with the requirements of air traffic services in the area(s) of operation.				

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(b) Radio equipment. An operator shall ensure that radio equipment comprises not less than; (1) two independent radio communication systems necessary under normal operating conditions to communicate with an appropriate ground station from any point on the route including diversions; and (2) SSR transponder equipment as required for the route being flown. (c) Navigation equipment. An operator shall ensure that navigation equipment (1) Comprises not less than:				
(i) One VOR receiving system, one ADF system, one DME except that an ADF system need not be installed provided that the use of ADF is not required in any phase of the planned flight (See AC OPS 1.865(c)(1)(i)); (ii) One ILS or MLS where ILS or MLS is required for approach navigation purposes;				
(iii) One Marker Beacon receiving system where a Marker Beacon is required for approach navigation purposes; (iv) An Area Navigation System when area navigation is required for the route being flown;				
(v) An additional DME system on any route, or part thereof, where navigation is based only on DME signals; (vi) An additional VOR receiving system on any route, or part thereof, where navigation is based only on VOR signals; and				
(vii) An additional ADF system on any route, or part thereof, where navigation is based only on NDB signals, or (2) Complies with the Required Navigation Performance (RNP) Type for operation in the airspace concerned. (See also AC OPS 1.243.)				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
(d) An operator may operate an aeroplane that is not equipped with an ADF or with the navigation equipment specified in sub-paragraph(s) (c)(1)(vi) and/or (c)(1)(vii) above, provided that it is equipped with alternative equipment authorised, for the route being flown, by the Authority. The reliability and the accuracy of alternative equipment must allow safe navigation for the intended route.				
(e) When operating in regional airspace requiring FM immunity performance standards, an operator shall ensure that VHF communication equipment, ILS Localiser and VOR receivers installed on aeroplanes to be operated in IFR are of a type that has been approved as complying with the FM immunity performance standards (See AC OPS 1.865(e)).				
CAR-OPS 1.866 Transponder equipment				
(a) An operator shall not operate an aeroplane unless it is equipped with; (1) A pressure altitude reporting SSR (secondary surveillance radar) transponder which operates in accordance with the relevant provisions of Annex 10, Volume IV; and (2) any other SSR transponder capability required for the area/route being flown.				
CAR-OPS 1.867 ADS-B (OUT and IN)				
ADS-B means automatic dependent surveillance - broadcast, a surveillance technique in which aircraft automatically provide, via a data link, data derived from on-board navigation and position-fixing systems. It refers to a surveillance technology where ADS-B Out equipped aircraft broadcast position, altitude, velocity, and other information in support of both air-to-ground and air-to-air surveillance applications.				
(a) ADS-B OUT: An operator shall not operate an aeroplane under IFR after 01 January 2020, unless it is equipped with ADS-B OUT.				
(b) ADS-B IN: An operator shall not operate an aeroplane equipped with the ADS-B IN capability unless approved by the GCAA.				
CAR-OPS 1.870 Additional navigation equipment for operations in MNPS airspace				

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SUBPART K INSTRUMENTS AND EQUIPMENT				
(a) An operator shall not operate an aeroplane in MNPS airspace unless it is equipped with navigation equipment that complies with minimum navigation performance specifications prescribed in ICAO Doc 7030 in the form of Regional Supplementary Procedures. (b) The navigation equipment required by this paragraph must be visible and usable by either pilot seated at his duty station. (c) For unrestricted operation in MNPS airspace an aeroplane must be equipped with two independent Long Range Navigation Systems (LRNS). (d) For operation in MNPS airspace along notified special routes an aeroplane must be equipped with one Long Range Navigation System (LRNS), unless otherwise specified.				
CAR-OPS 1.872 Equipment for operation in defined airspace with RVSM				
An operator shall ensure that aeroplanes operated in RVSM airspace are equipped with: (1) Two independent altitude measurement systems; (2) An altitude alerting system; (3) An automatic altitude control system; and (4) A secondary surveillance radar (SSR) transponder with altitude reporting system that can be connected to the altitude measurement system in use for altitude keeping.				