2 Removal of locking and safety devices

2.2 Where external control surface locks, undercarriage pins and locks, or other external locking or restricting devices have been fitted, they must, except where otherwise approved by CASA, be removed prior to commencement of taxiing for the purpose of taking off. They must be removed only by the pilot in command or the co-pilot, or by a person instructed in this function and authorised to perform it by the owner, hirer, operator or pilot in command.

2.3 Where external control surface locks, undercarriage pins and locks, or other external locking or restricting devices are removed by a person other than the pilot in command or co-pilot:

2.3.1 Removal must only be effected as directed by the pilot in command.

2.3.2 The locks, pins and other external devices must be exhibited to the pilot in command or co-pilot from a position which will enable him or her to readily determine that all pins, locks and devices are being displayed.

2.3.3 During the hours of darkness the owner, hirer, operator or pilot in command must ensure that adequate lighting is provided to enable the pilot in command or co-pilot (as the case may be) to see the articles displayed.

2.3.4 When the pilot in command or co-pilot is satisfied that all locking devices have been removed and displayed he or she must give an agreed form of acknowledgement to the person effecting removal.

2.3A If any external control surface lock, undercarriage pin or lock, or other external locking or restricting device, fitted to an aircraft:

(a) has been removed by a person other than the pilot in command of the aircraft; and

(b) has not been exhibited to him or her under subparagraph 2.3.2;

the pilot in command of the aircraft must not start taxiing the aircraft, or allow the aircraft to be taxied, for the purposes of taking-off unless the co-pilot has told him or her that the lock, pin or other device has been removed:

(c) by the co-pilot; or

(d) by a person other than the co-pilot in accordance with paragraph 2.3.

2.4 When an aircraft has been parked, taxied or towed in winds exceeding 35 knots and the control systems and surfaces have not been effectively restrained either by a person in the cockpit or by approved control surface gust locks, the pilot in command or an appropriately licensed maintenance engineer must, before flight,

inspect the control systems and control surface attachments for damage.

2.5 Where external control surface locks or restricting devices have been removed as prescribed by paragraphs 2.2 and 2.3 of this section, or where an aircraft is to be flown for the first time following maintenance work involving the aircraft's control surfaces or control surface systems, the pilot in command must, immediately before taxiing for the purpose of taking off, test the flight controls to the full limit of their travel and make such other tests as are necessary to ensure that those controls are functioning correctly.

Note Paragraph 244 (1) (a) of the *Civil Aviation Regulations 1988* requires that immediately before taking-off on any flight, the pilot in command of an aircraft must test the flight controls on the ground to the full limit of their travel and make such other tests as are necessary to ensure that those controls are functioning correctly.

3 Security of doors and hatches

Immediately before taxiing for the purpose of taking off on any flight, the pilot in command must ensure that all doors, escape hatches and loading hatches are properly secured.

4 Precautions before solo flight in aircraft fitted with dual controls

The pilot in command of an aircraft fitted with dual controls, which is to be flown solo, must ensure that safety harness and any other articles or equipment which may foul the controls are safely secured; if the second control column is readily detachable, it must be removed.

5 Fuel system inspection

5.1 The operator and pilot in command must ensure that the following inspections and tests for the presence of water in the fuel system of the aircraft are made:

(a) either:

(i) if:

(A) the aircraft manufacturer's data specifies the manner in which inspections and tests for the presence of water in the aircraft's fuel system are to be made; and

(B) the data has been approved under regulation 42M of the *Civil Aviation Regulations 1988* as part of the aircraft's system of maintenance;

an inspection and test in accordance with the approved data; or

(ii) in any other case — before the start of each day's flying, and after each refuelling, with the aircraft standing on a reasonably level surface, drain a small quantity of fuel from each fuel tank into a clear transparent container and check by an approved method for the presence of water;

(b) on such aircraft types which may be specified by CASA, extend the foregoing inspection to fuel system filters and collector boxes. It is recommended that all aircraft fuel system filters and collector boxes be checked for water contamination at frequent intervals.

Note It is important that checks for water contamination of fuel drainage samples be positive in nature and do not rely solely on sensory perceptions of colour and smell, both of which can be highly deceptive. The following methods are acceptable:

1. Place a small quantity of fuel into the container before taking samples from tank or filter drain points. The presence of water will then be revealed by a visible surface of demarcation between the two fluids in the container.
2. Check the drainage samples by chemical means such as water detecting paper or paste, where a change in colour of the detecting medium will give clear indication of the presence of water.
3. In the case of turbine fuel samples, tests should also include inspection for persistent cloudiness or other evidence of the presence of suspended water droplets, which will not necessarily be detected by methods mentioned in notes 1 and 2. Should any doubt exist of the suitability of the fuel, the checks specified in the aircraft Operators Maintenance Manual should be followed. It is advisable to allow turbine fuel a reasonable period of stagnation before drawing test samples from fuel drain points; this allows settling of suspended water which is a slower process in turbine fuel than in aviation gasoline.

5.1A In relation to a refuelling that is a hot refuelling in accordance with section 20.10 or section 20.10.1, the operator and pilot in command of an aircraft are not required to carry out inspections and tests in accordance with paragraph 5.1. This does not effect the requirement to do so before the start of each day's flying.

5.2 If, at any time, a significant quantity of water is found to be present in an aircraft fuel system, the operator and pilot in

command must ensure that all traces of it are removed from the fuel system, including the fuel filters, before further flight.

Note In eliminating water from an aircraft fuel system, it is important that consideration be given to the possibility of water lying in portions of the tanks or fuel lines where, because of the design of the system or the existing attitude of the aircraft, it is not immediately accessible to a drain point.

5.3 The operator and pilot in command must ensure that, before the commencement of each day's flying, all external fuel tank vents are inspected for freedom from obstruction.

6 Fuel quantity measurement

6.1 The operator of an aircraft having a maximum take-off weight of more than 5 700 kg and engaged in commercial operations must ensure that the operations manual contains instructions and procedures for the pilot in command of the aircraft to verify the quantity of fuel on board the aircraft before flight.

Note See Airworthiness Bulletin 28-002 for advice on instructions and procedures that may be adopted to verify the quantity of fuel on board an aircraft before flight.

6 SUPPLEMENTAL OXYGEN REQUIREMENTS FOR UNPRESSURISED AIRCRAFT

Supplemental oxygen for flight crew members

6.1 A flight crew member who is on flight deck duty in an unpressurised aircraft must be provided with, and continuously use, supplemental oxygen at all times during which the aircraft flies above 10 000 feet altitude.

6.2 A flight crew member must, in respect of any period during which the member is not on flight deck duty, be provided with the amount of supplemental oxygen that is provided to a crew member in accordance with paragraph 6.3.

Supplemental oxygen for other crew members

6.3 A crew member (not being a flight crew member on flight deck duty) in an unpressurised aircraft must be provided with supplemental oxygen:

(a) in respect of any period exceeding 30 minutes during which the aircraft flies between 10 000 feet altitude and Flight Level 120 (both inclusive); and

(b) at all times during which the aircraft flies above Flight Level 120;

and must use supplemental oxygen at all times during which the aircraft flies above Flight Level 140.

Supplemental oxygen for passengers

6.4 Where an unpressurised aircraft carrying passengers flies for more than 30 minutes above 10 000 feet altitude and up to and including Flight Level 140, the aircraft must carry sufficient supplemental oxygen to supply:

(a) 10% of the passengers with oxygen for 30 minutes; or
(b) 20% of the passengers with oxygen for 15 minutes.

6.5 Where an unpressurised aircraft carrying passengers flies above Flight Level 140, the aircraft must carry sufficient supplemental oxygen to supply each passenger with oxygen during all periods that the aircraft flies above Flight Level 140.

3 Fuel and oils

3.1 The pilot in command of an aircraft shall ensure that the aircraft is not flown unless the aviation fuel, aircraft engine lubricating oil, aircraft engine power augmentation fluid and aircraft hydraulic system fluid used in connection with the servicing or operation of the aircraft complies with the specification and grade required or approved for the purpose by CASA.

Note 1 In respect of aircraft engine power augmentation fluid and aircraft hydraulic system fluid the specification and grade specified for a particular purpose in a manual or manuals promulgated by the aircraft or aircraft engine manufacturer may be considered as having been approved by CASA.

Note 2 The pilot in command may assume that:

(a) aviation fuel; and

(b) aircraft engine lubricating oil; and

(c) aircraft engine power augmentation fluid; and

(d) aircraft hydraulic system fluid in the aircraft, other than that which he has caused to be delivered into the aircraft, complies with the required specification and grade.

3.3 All ground fuel stock shall be carefully checked for the presence of undissolved water before the fuelling operation is commenced.

Note 1 This precaution is particularly important when handling fuel from drum stocks.

Note 2 Attention is drawn to the necessity of using a positive method, such as suitable waterdetecting paste or paper, in testing for the presence of free water since sensory perceptions of colour and smell, if used alone, can be quite misleading.

Note 3 In the case of turbine fuels, attention is also drawn to the necessity of watching for signs of cloudiness or other indication of the presence of suspended water droplets which will not necessarily be detected by the means mentioned in Note 2.

3.4 All fuel shall be strained or filtered for the removal of free or suspended water and other contaminating matter before entering the aircraft tanks.

Note Attention is drawn to the special standards of filtration which may be specified by the manufacturers of certain types of engines. e.g. turbine engines and direct-injection piston engines.

4 Fuelling of aircraft

4.1 Location of aircraft

4.1.1 During fuelling operations, the aircraft and ground fuelling equipment shall be so located that no fuel tank filling points or vent outlets lie:

(a) within 5 metres (17 ft) of any sealed building; and

(b) within 6 metres (20 ft) of other stationary aircraft; and

(c) within 15 metres (50 ft) of any exposed public area; and

(d) within 15 metres (50 ft) of any unsealed building in the case of aircraft with a maximum take-off weight in excess of 5 700 kg (12 566 lb) and

(e) within 9 metres (30 ft) of any unsealed building in the case of aircraft with a maximum take-off weight not exceeding 5 700 kg (12 566 lb).

4.1.1.1 Notwithstanding the contents of paragraph 4.1.1 limited fuelling operations for maintenance purposes may be carried out in certain hangars under the following conditions:

(a) refuelling or defuelling of gasoline or wide-cut gasoline type turbine fuel is not permitted;

(b) overwing fuelling is not permitted;

(c) these operations shall not be permitted in hangars occupied by 2 or more tenants;

(d) the operator shall obtain approval from CASA for the detailed procedures under which these operations may be performed. These procedures shall be described in the maintenance manual and shall include the circumstances under which refuelling or defuelling in hangars or maintenance area is permitted, and the maximum volume of fuel involved.

4.1.1.2 For the purpose of this Order, a sealed building is one which all the external part within 15 metres (50 ft) of an aircraft's fuel tank filling points or vent outlets or ground fuelling equipment is of non-flammable materials and has no openings or all openings are closed.

4.1.2 Where the fuelling equipment is not mobile, the aircraft shall be so placed that it can be rapidly moved to a place of safety, and a means of ensuring that this can be done shall be readily available.

Note The following operations are not deemed to constitute fuelling operations:

(a) the drainage of a small quantity of fuel from a fuel system drain point;

(b) the transfer of fuel from tank to tank within an aircraft making use exclusively of lines and equipment permanently installed in the aircraft.

4.2 Fuelling with passengers on board

4.2.1 The operator of an aircraft must ensure that avgas is not loaded onto an aircraft while passengers are on board, or entering or leaving, the aircraft.

4.2.2 The operator of an aircraft that has an underwing fuelling system must ensure that fuel is not loaded onto the aircraft using this system while passengers are on board, or entering or leaving, the aircraft unless the fuel is aviation grade turbine fuel that contains anti-static additive or is loaded in the USA and meets the ASTM D 1655 standard and the following conditions are satisfied:

(a) before the fuel is loaded, all persons who may be on board, or entering or leaving, the aircraft while the fuel is loaded are told that:

(i) fuel is to be loaded; and

(ii) their seat-belts must not be fastened while the fuel is loaded; and

(iii) they must not smoke, use any electrical equipment (other than medical equipment used for treating a patient, the operation of which will not affect the safety of any person on board the aircraft) or do anything else that might cause fuel vapours to ignite during the loading;

(b) all persons on board, or entering or leaving, the aircraft obey the instructions given under sub-subparagraphs (a) (ii) and (iii);

(c) a cabin crew or flight crew member is appointed to perform the following tasks while the fuel is loaded:

(i) ensure the safety of the passengers;

(ii) maintain discipline inside the aircraft;

(iii) supervise any necessary evacuation of the aircraft;

(d) while the fuel is loaded:

(i) the aircraft's "fasten seat belt" signs are turned off; and

(ii) the aircraft's "no smoking" signs are turned on; and

(iii) the aircraft's emergency lights (if any) are armed;

(e) while the fuel is loaded, there is at least 1 cabin crew or flight crew member on duty in the aircraft:

(i) for every 72 passengers on board the aircraft; or

(ii) for every passenger zone in the aircraft in which there are passengers;

whichever is more;

(f) while the fuel is loaded, there is at least 1 cabin crew or flight crew member on duty by at least 1 exit door of each of the aircraft's passenger zones in which there are passengers;

(g) all cabin crew or flight crew members who are on duty in the aircraft while the fuel is loaded:

(i) are prepared for an immediate evacuation; and

(ii) supervise the passengers during the loading; and

(iii) ensure that the aisles and exits are unobstructed during the loading;

(h) the areas outside the aircraft that would be used if the aircraft were evacuated are kept clear while the fuel is loaded;

(k) if the aircraft's engine is running — a member of the aircraft's flight crew is on duty on its flight deck;

(l) the operator's operations manual sets out:

(i) the responsibilities of members of the operating crew who are on duty in the aircraft while fuel is loaded; and

(ii) procedures for complying with the requirements of this paragraph.

Note An underwing fuelling system is any system that forms part of the aircraft and that allows delivery of fuel to the aircraft without exposing the fuel to the atmosphere during delivery.

4.2.3 Subject to paragraph 4.2.4, the operator of an aircraft without an underwing fuelling system must ensure that fuel is not loaded on to the aircraft while passengers are on board, or entering or leaving, the aircraft.

4.2.4 The operator of an aircraft that cannot be underwing fuelled may allow fuel to be loaded onto the aircraft while a passenger is on board if:

(a) the passenger's medical condition is such that he or she cannot leave the aircraft without assistance; and

(b) the aircraft's cabin door is open; and

(c) the equipment used for loading or unloading passengers (if any) is in position at the door; and

(d) the requirements and conditions set out in paragraph 4.2.2 are satisfied.

4.2.5 If:

(a) fuel is being loaded onto an aircraft in accordance with paragraph 4.2.2 or 4.2.4; and

(b) either:

(i) fuel vapour is found inside the aircraft; or

(ii) for any other reason it is not safe to continue loading the fuel;

the aircraft's operator must ensure that the loading of the fuel stops immediately.

4.3 Aircraft safety precautions during fuelling operations

4.3.1 All engines in the aircraft, including any auxiliary power units, must be shut down, except where CASA is satisfied that the operation of such an engine or auxiliary power unit will not present a hazard and where a statement to that effect, together with any special conditions for operation, is included in the operator's operations manual if such a manual is required.

Note For this paragraph, CASA is satisfied if the aircraft flight manual permits operation of such an engine or auxiliary power unit.

4.3.2 When an external electrical supply is used, the connections between that supply and the aircraft electrical system shall be made and securely locked before the fuelling operation is connected and shall not be disconnected until the operation has been completed, except that connectors, which provide control to ensure effective engagement before external power can be supplied to the aircraft, need not be locked.

4.3.3 A person shall not, and the pilot in command and the operator shall take reasonable steps to ensure that a person does not, during fuelling operations:

(a) operate or perform maintenance work on the aircraft's radar equipment except that where the fuel is kerosene, operation or maintenance may be carried out provided the radar transmitter is deactivated; or

(b) except where the fuel involved is kerosene, carry out maintenance on any electrical, electronic or radio systems within the aircraft or operate such equipment other than the aircraft's interior lighting or electrical apparatus necessary for the fuelling process.

4.3.4 For fuelling an aircraft, the following requirements apply:

(a) before a fuel tank cap is removed, the aircraft and all fuelling equipment must be bonded;

(b) if bonding is lost, fuel transfer must be stopped immediately and not resumed until the bond is restored.

Note Care must be taken before reconnecting the bonding wire to allow for dissipation of static electricity that may have built up.

4.3.4A For paragraph 4.3.4:

bonded means the aircraft and the fuelling equipment have the same electrical potential.

fuelling includes refuelling and defuelling.

fuelling equipment includes mobile fuel tankers, in-ground refuel ports, fuel bowsers, hand pumps, drums, funnels and other loose items of equipment if these are used in the fuelling operation.

4.3.5 All footwear worn by aircraft servicing personnel and persons operating fuelling equipment shall be of a non-sparking type and such persons shall not carry any matches, cigarette lighters or other objects which could represent an ignition hazard.

4.3.6 Except where automatic shut-off devices limit the capacity of an aircraft fuel tank, the operator and the pilot in command shall ensure that sufficient airspace remains in each fuel tank to allow for anticipated fuel expansion.

4.3.7 When a fuelling operation on an aircraft has been completed, the pilot in command and the operator of the aircraft shall ensure that all fuel and oil tank caps are securely refitted.

4.3.8 Aircraft oil tanks shall not be drained or filled when the aircraft is inside a hangar or other building unless the oiling equipment used complies with the provisions of Appendix I to this Order.

4.4 Safety precautions external to an aircraft during fuelling operations

4.4.1 The area in which fuelling operations are carried out shall be clearly placarded as a 'No Smoking' area and the limits of this area shall be a sealed building or at least 15 metres (50 ft) from the aircraft or ground fuelling equipment.

4.4.2 Where mobile fuelling equipment is used, the equipment shall be so placed that it can be rapidly moved in the event of fire.

4.4.3 A person shall not, and the pilot in command and the operator shall take reasonable steps to ensure that a person does not, during fuelling operations:

(a) smoke or use a naked flame within 15 metres (50 ft) of the aircraft and ground fuelling equipment; or

(b) except in the case of aircraft, operate an internal combustion engine or any electrical switch, battery, generator, motor or other electrical apparatus within 15 metres (50 ft) of the aircraft's fuel tank filling points or vent outlets, and ground fuelling equipment unless the engine, switch, generator, motor or apparatus complies with the provisions of Appendix I to this Order and has been inspected.

4.4.4 At least 2 fire extinguishers of approved type and capacity must be positioned:

(a) within 15 metres, but not less than 6 metres, from the aircraft and the fuelling equipment; or

(b) carried on the fuelling equipment.

4.4.5 If the fire extinguishers are carried on the fuelling equipment, they must:

(a) be fitted with quick release brackets; and

(b) be readily available from either side of the equipment; and

(c) be located as far as practicable from the vehicle fuel tanks and fuelling points.

4.4.6 For paragraph 4.4.4 and 4.4.5, the fire extinguishers may be:

(a) 60B dry powder fire extinguishers; or

(b) an 80B dry powder fire extinguisher and a 20B foam extinguisher; or

(c) other fire extinguishers approved by CASA.

Note The use of 2 carbon dioxide extinguishers, each with a minimum capacity of 4.5 kg (10 lb), is acceptable for this purpose. Extinguishers of other types and capacities may be approved on application to CASA.

4.5 Action in the event of a fire hazard

4.5.1 A fuelling operation shall be suspended and the Airport Fire Service notified when any fuel of a quantity likely to create a fire hazard is spilled on or within 15 metres (50 feet) of the aircraft or ground fuelling equipment, including the bilge of a fuelling barge, and the operation shall not recommence until the fire hazard is removed.

4.5.2 A fuelling operation shall be stopped as soon as it becomes apparent that an infringement exists of any of the relevant requirements of this Order.

4.5.3 When any fuel of a quantity likely to create a fire hazard is spilled on or within 15 metres (50 ft) of the aircraft or ground fuelling equipment, the pilot in command or, in his absence, the operator shall ensure that:

(a) passengers remaining on board or in the process of embarking or disembarking are removed to a point at least 15 metres (50 ft) from the spilled fuel; and

(b) mobile power units, vehicles and power operated loading devices operating within 15 metres (50 ft) of the spilled fuel are shut down; and

(c) maintenance work of any nature on or within the aircraft is suspended and not recommenced until the spilled fuel has been removed.

4.7 In this subsection:

cabin crew member means a person who:

(a) is a member of the operating crew, but not the flight crew, of an aircraft; and

(b) may be assigned to emergency duties in the aircraft under subsection 12 of section 20.11 of the Civil Aviation Orders.

passenger zone in relation to an aircraft, means an area within the aircraft which has:

(a) seats for 72 or less passengers; and

(b) an exit.

5 Starting and ground operations of engines

5.1 The pilot in command or in his absence any other person responsible for starting or ground operation of an aircraft shall ensure that:

5.1.1 In the case of land aircraft, passenger loading equipment to permit rapid evacuation of passengers and crew is kept immediately available during the starting of engines.

5.1.2 In the case of seaplanes, water transport of a capacity sufficient to enable rapid evacuation of passengers and crew is immediately available during the starting of engines.

5.1.3 Where any fuel or other flammable material is spilled within 15 metres (50 ft) of an aircraft, the aircraft engines shall not be started or operated until the fire hazard has been removed.

5.1.4 An aircraft engine shall not be started or operated:

(a) within 5 metres (17 ft) of any sealed building; or

(b) within 8 metres (25 ft) of other aircraft; or

(c) within 15 metres (50 ft) of any exposed public area; or

(d) within 15 metres (50 ft) of any unsealed building in the case of an aircraft with a maximum take-off weight exceeding 5 700 kg (12 566 lb); or

(e) within 8 metres (25 ft) of any unsealed building in the case of an aircraft with a maximum take-off weight not exceeding 5 700 kg (12 566 lb);

Section 20.11

Emergency and life saving equipment and passenger control in emergencies

1 Application

This section applies to all Australian registered aircraft, except where otherwise specified in these Orders.

2 Definitions

In this section, unless a contrary intention appears:

handicapped person means a person requiring special attention because illness, injury, age, congenital malfunction, or other temporary or permanent incapacity or disability makes that person unable without special facilities or assistance to utilise air transport facilities and services as effectively as persons who are not so affected.

land aircraft means all aircraft other than amphibious aircraft when operating on water, helicopters equipped with fixed flotation equipment when operating on water, seaplanes and flying boats.

portable megaphone means a portable battery-powered megaphone that meets the performance standards set out in paragraph 6A.5.

3 Maintenance of emergency and lifesaving equipment

An operator must ensure that emergency and lifesaving equipment, carried or installed in an aircraft to meet the requirements of this section, is maintained in such condition that it will satisfactorily perform its design function.

5 Flotation equipment for overwater flights

5.1 Life jackets

5.1.1 Aircraft shall be equipped with 1 life jacket for each occupant when the aircraft is over water and at a distance from land:

(a) in the case of a single engine aircraft — greater than that which would allow the aircraft to reach land with the engine inoperative; and

(b) in the case of multi-engine aircraft — greater than 50 miles.

Note 1 For the purposes of this paragraph, ***land*** shall mean land suitable for an emergency landing.

Note 2 Except as specified in paragraph 5.1.2 below, the provisions of this paragraph need not apply to land aircraft departing from or landing at an aerodrome in accordance with a normal navigational procedure for departing from or landing at that aerodrome.

5.1.2 Land aircraft that carry passengers and are engaged in:

(a) regular public transport operations; or

(b) charter operations;

shall be equipped with a life jacket or flotation device for each occupant on all flights where the take-off or approach path is so disposed over water that in the event of a mishap occurring during the departure or the arrival it is reasonably possible that the aircraft would be forced to land onto water.

5.1.3 Where required by paragraph 5.1.1 or paragraph 5.1.2, a life jacket or individual flotation device shall be stowed at or immediately adjacent to each seat. In addition, sufficient additional life jackets or individual flotation devices shall be carried in easily accessible positions for use by infants or children for whom a life jacket or individual flotation device is not available at or adjacent to their seated position.

5.1.4 Amphibious aircraft when operating on water, helicopters equipped with fixed flotation equipment when operating on water, and all seaplanes and flying boats on all flights shall be equipped with:

(a) 1 life jacket for each occupant; and

(a) an additional number of life jackets (equal to at least one-fifth of the total number of occupants) in a readily accessible position near the exits.

5.1.5 Life jackets shall be so stowed in the aircraft that 1 life jacket is readily accessible to each occupant and, in the case of passengers, within easy reach of their seats.

5.1.6 Life jackets must:

(a) comply with a standard approved by CASA; and

(b) be of an inflatable type; and

(c) except for an infant life jacket — have a whistle fitted in a suitable stowage.

5.1.7 Where life jackets are required to be carried in accordance with subparagraph 5.1.1 (a) each occupant shall wear a life jacket during flight over water. However, occupants of aeroplanes need

not wear life jackets during flight above 2 000 feet above the water.

5.1.8 Where life jackets are required to be carried in accordance with paragraph 5.1.4 each occupant of a single engine aircraft shall wear a life jacket during flight over water when the aircraft is operated beyond gliding distance from land or water, as appropriate, suitable for an emergency landing. However, occupants need not wear life jackets when the aircraft is taking-off or landing at an aerodrome in accordance with a normal navigational procedure for departing from or arriving at that aerodrome, and occupants of aeroplanes need not wear life jackets during flight above 2 000 feet above the water.

5.1.9 Notwithstanding paragraph 5.1.8 above each occupant of a helicopter operating to or from an off-shore landing site located on a fixed platform or vessel shall wear a life jacket during the entire flight over water regardless of the class of operation or the one-engine-inoperative performance capability of the helicopter.

5.2 Life rafts

5.2.1 An aircraft that is flown over water at a distance from land greater than the permitted distance must carry, as part of its emergency and lifesaving equipment, sufficient life rafts to provide a place in a life raft for each person on board the aircraft.

5.2.1.1 For the purposes of paragraph 5.2.1, the permitted distance is:

(a) in the case of an aircraft that has:

(i) 4 engines; or

(ii) 3 turbine engines; or

(iii) 2 turbine engines and complies with section 20.7.1B;

a distance equal to 120 minutes at normal cruising speed, or 400 miles, whichever is the less; or

(b) in any other case — a distance equal to 30 minutes at normal cruising speed, or 100 miles, whichever is the less.

5.2.2 Notwithstanding the requirements of paragraph 5.2.1, CASA may require the carriage of life rafts on such other overwater flights as CASA considers necessary.

5.2.3 Life rafts carried in accordance with paragraph 5.2.1 shall be in addition to life jackets carried in accordance with paragraphs 5.1.1 and 5.1.2.

5.2.4 Life rafts carried in accordance with this section shall be stowed so as to be readily accessible in the event of a ditching without appreciable time for preparatory procedures. When life rafts are

stowed in compartments or containers, such compartments or containers shall be appropriately and conspicuously marked. Where life raft stowages have to be installed in aircraft to meet the requirements of this section, such stowages shall comply with the requirements of Part 101 appropriate to the certification of the aircraft concerned.

5.2.5 Life rafts must comply with a standard approved by CASA.

5.3 Helicopter flotation systems

5.3.1 A single engine helicopter engaged in passenger carrying charter operations shall be equipped with an approved flotation system whenever the helicopter is operated beyond autorotative gliding distance from land. However, when following a helicopter access lane prescribed in AIPERSA, or when departing from or landing at a helicopter landing site in accordance with a normal navigational procedure for departing from or landing at that site, an approved flotation system is not required.

5.3.2 A single engine helicopter engaged in regular public transport operations shall be equipped with an approved flotation system whenever the helicopter is operated beyond autorotative gliding distance from land.

5.3.3 A multi-engine helicopter engaged in passenger carrying charter or regular public transport operations over water and which is not operated in accordance with oneengine-inoperative accountability procedures shall be equipped with an approved flotation system.

6 Emergency signalling equipment

6.1 An aircraft required to carry life rafts under paragraph 5.2.1 or 5.2.2 must be fitted with, or carry, the following emergency signalling equipment:

(a) when 1 life raft is carried — at least 1 approved ELT or 1 approved portable ELT;

(b) when more than 1 life raft is carried — at least:

(i) 1 approved ELT and 1 approved portable ELT; or

(ii) 2 approved portable ELTs;

(c) a supply of pyrotechnic distress signals.

Note If carrying an approved portable ELT to comply with this paragraph, CASA ***recommends*** an emergency position indicating radio beacon (an EPIRB).

6.2 A single engine aircraft must be fitted with, or carry, at least 1 approved ELT or 1 approved portable ELT if it is:

(a) on a flight over water; and

(b) not required to carry a life raft under paragraph 5.2.1 or 5.2.2; and

(c) either:

(i) not equipped with radio communication equipment; or

(ii) not capable of continuous airground communication.

Note If carrying an approved portable ELT to comply with this paragraph, CASA ***recommends*** an emergency position indicating radio beacon (an EPIRB).

6.3 If an approved portable ELT that is carried is an emergency position indicating radio beacon (an EPIRB), it must be carried:

(a) in, or adjacent to, a life raft; or

(b) adjacent to an emergency exit used for evacuation of the aircraft in an emergency.

6.4 If an approved portable ELT that is carried is a personal locator beacon (a PLB), it must be carried:

(a) on the person of a member of the operating crew; or

(b) in, or adjacent to, a life raft; or

(c) adjacent to an emergency exit used for evacuation of the aircraft in an emergency.

6.5 The pilot in command of an aircraft must not begin a flight, and the operator must ensure that the flight is not begun, if an approved ELT or approved portable ELT on board the aircraft for this subsection has not successfully undergone the periodic inspection and testing recommended for it by its manufacturer.

Note For the maintenance requirements for emergency locator transmitters see also Part 4A of the *Civil Aviation Regulations 1988*.

6.6 Before an approved ELT or approved portable ELT may be used in an aircraft for this subsection, it must be registered with the Australian Maritime Safety Authority.

6.7 In this subsection:

approved ELT has the same meaning as in subregulation 252A (7) of the *Civil Aviation Regulations 1988* (***CAR 1988***).

approved portable ELT has the same meaning as in subregulation 252A (7) of CAR 1988.

6A Portable megaphones

6A.1 This subsection applies to an aircraft that:

(a) is engaged in:

(i) regular public transport operations; or

(ii) charter operations for the purpose of carrying passengers; and

(b) has a passenger seating capacity of more than 60 seats; and

(c) is carrying at least 1 passenger.

6A.2 An aircraft to which this subsection applies must carry:

(a) if it has a passenger seating capacity of less than 100 seats — 1 portable megaphone; or

(b) otherwise — 2 portable megaphones.

6A.3 If 1 megaphone is carried in an aircraft under this subsection, it must be kept in a place where it is readily accessible from a crew member's seat.

6A.4 If 2 megaphones are carried in an aircraft under this subsection, they must be distributed through the passenger cabin or cabins so as to be readily accessible to crew members.

6A.5 Each portable megaphone must meet the following performance standards:

(a) it must be able to perform its function throughout any flight on which it is carried; and

(b) it must be designed for ease of handling and use with 1 hand; and

(c) it must have a volume control or adequate acoustic feedback suppression.

7 Survival equipment

7.1 An aircraft shall carry survival equipment for sustaining life appropriate to the area being overflown on the following flights:

(a) where the carriage of life rafts are required by paragraphs 5.2.1 and 5.2.2;

(b) during operations within or through the remote areas specified in Appendix III;

(c) on such other flights as may be directed by CASA.

8 Accessories for water operations

8.1 Amphibious aircraft when operating over water and all seaplanes and flying boats shall carry at least 1 sea anchor (drogue) and appropriate fittings shall be provided for the attachment of the sea anchor to the aircraft.

12.4 Upon satisfactory completion of the proficiency test a certificate to the effect that the crew member has passed the test shall be issued to the operator by the person who conducted the test. A certificate issued under this paragraph shall be current for a period of twelve months after the date of issue thereof.

12.5 An operator shall retain all certificates issued to him in accordance with paragraph 12.4 and shall keep and maintain a record containing the following particulars:

(a) the names of crew members who have undertaken the proficiency test;

(b) the dates on which a member has undertaken the proficiency test;

(c) the results of all proficiency tests undertaken by any crew member.

12.6 A proficiency test undertaken within a period of ninety days immediately preceding the expiry date of a certificate issued under paragraph 12.4 shall be deemed to have been undertaken on the expiry date of that certificate.

13 Cabin attendants

13.1 Number of attendants

Aircraft engaged in the carriage of passengers on regular public transport operations shall contain at least the number of cabin attendants specified in section 20.16.3.

13.2 Seating position

At all times when they are required to wear seat belts cabin attendants shall be distributed uniformly throughout the passenger compartment or compartments, seated as near as practicable to emergency exits and each section of the aisle(s) shall be under the surveillance of at least 1 cabin attendant.

13.3 Training

Cabin attendants shall not be assigned to emergency duties on an aircraft unless in addition to the requirements of subsection 12 they have been given instruction in the following on that aircraft:

(a) a general description of the aircraft;

(b) a knowledge of all crew member's assignment, functions and responsibilities during an evacuation or ditching;

(c) briefing of passengers;

(d) use of public address system, where fitted, and means of communicating with the cockpit; and

(e) location and use of first aid equipment.

14 Briefing of passengers

14.1 General

14.1.1 The operator of an aircraft shall ensure that all passengers are orally briefed before each take-off on:

(a) smoking, including the prohibition of smoking in toilets; and

(b) the use and adjustment of seat belts; and

(c) the location of emergency exits; and

(d) the use of oxygen where applicable; and

(e) the use of flotation devices where applicable; and

(f) stowage of hand luggage; and

(g) the presence on board of special survival equipment where applicable.

14.1.2 The operator of an aircraft shall ensure that a handicapped person, and the person assisting the handicapped person, if any, is given individual briefing appropriate to the needs of that person in the procedures to be followed in the event of emergency evacuation of the aircraft. The briefing should include which emergency exit to use and when to move to the exit. The person giving the briefing should also enquire as to the most appropriate manner of assisting the handicapped person so as to prevent pain or injury to that person.

14.1.3 The operator of a charter or regular public transport aircraft with a seating capacity of more than 6, including crew, shall supplement the oral briefing required by paragraph 14.1.1 with printed matter carried in convenient locations for the use of passengers and containing:

(a) diagrams of the emergency exits and methods of operating; and

(b) other instructions necessary for the use of emergency equipment; and

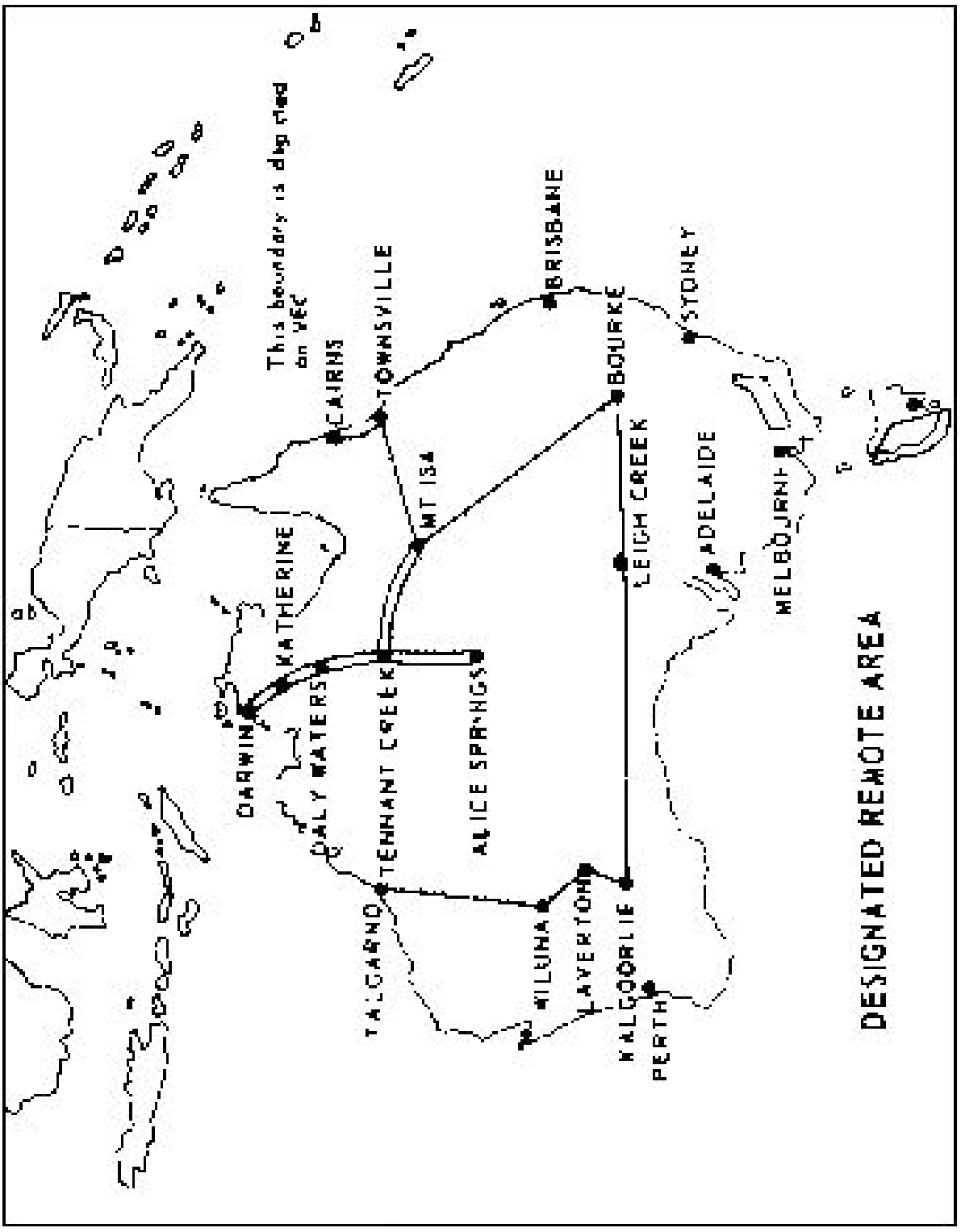
(c) the brace position for emergency landing or ditching.

14.1.4 Each card required by paragraph 14.1.3 shall contain only information that is pertinent to the type and model aircraft being used for the flight. Different seating configuration for a particular aircraft may be included on 1 card providing the oral briefing includes advice of the configuration in use.

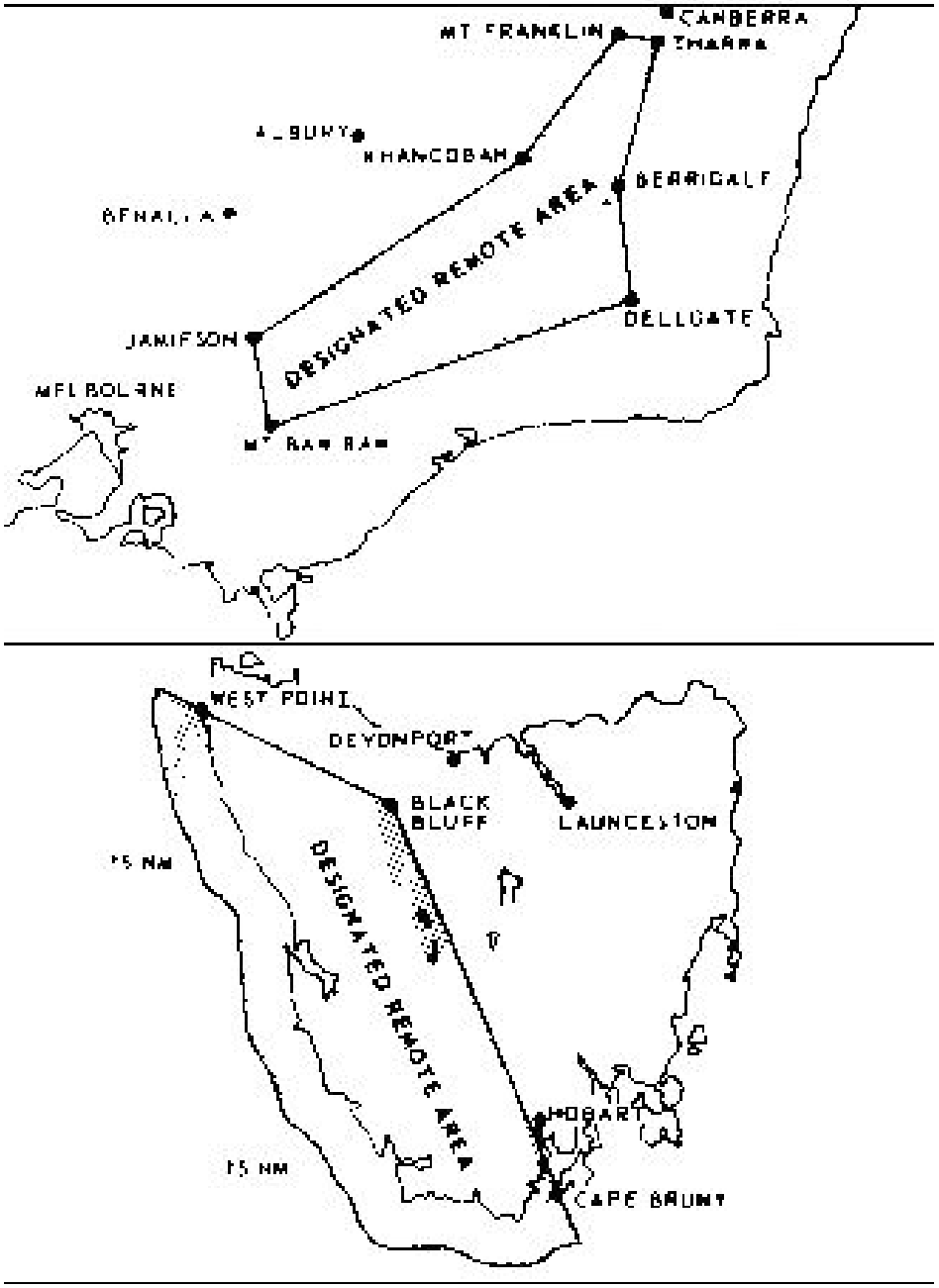
14.1.5 In the case of aircraft engaged on charter or regular public transport operations, the procedures to be followed in the briefing required by paragraph 14.1.1 shall be specified in the aircraft's operations manual or in another document specified in the operations manual.

14.1.6 Aircraft engaged on regular public transport operations with a passenger seating capacity of 10 seats or more shall be equipped with an approved and serviceable electronic public address system for the purpose of making announcements relative to emergency procedures. The system shall be an integral part of the aircraft and shall be accessible and capable of immediate operation by the pilot in command, the co-pilot or an appropriately trained crew member. The transmission shall be audible throughout the passenger cabin.

Appendix III



Note 3 Mainland within 50 n.m. of Darwin excluded from Designated Remote Area.



3 Seats

3.1 Each crew member and each passenger shall occupy a seat of an approved type:

(a) during take-off and landing; and

(b) during an instrument approach; and

(c) when the aircraft is flying at a height less than 1000 feet above the terrain; and

(d) in turbulent conditions:

except:

(i) infants, children and stretcher cases carried in accordance with subsections 13 and 14 respectively; and

(ii) package dispatchers carried in accordance with section 29.5; and

(iii) parachutists carried in accordance with subsection 15.

3.2 Each crew member and passenger shall occupy a seat of an approved type during agricultural operations and during acrobatic manoeuvres.

3.3 The operator of the aircraft must ensure that exit rows in the aircraft are occupied only by persons who are fully able and willing to assist with access to the emergency exits in the event of an emergency.

4 Seat belts and safety harnesses

4.1 Except as provided in subsections 14 and 15 safety harnesses, or seat belts where safety harnesses are not fitted, shall be worn by all persons at the times listed in paragraph 3.1. Seat belts and safety harnesses shall be adjusted to fit the wearer without slack.

4.2 At least 1 pilot crew member shall wear a seat belt or harness at all times during flight.

4.3 When a cabin attendant is not required to be carried in an aircraft, and the passenger seating capacity is 10 seats or more, an approved and serviceable electronic public address system shall be provided to enable the pilot in command to notify passengers when a seat belt or safety harness is to be worn.

5 Adjustment of seats

5.1 All seats (with the exception of those specified in paragraph 5.2) shall be adjusted to their upright position for take-off and landing.

5.2 When it is desirable through illness or other incapacity that a passenger's seat remains in the reclined position during take-off or landing, that seat, notwithstanding the provision of paragraph 5.1, may be left reclined during take-off or landing if it is forward facing, there is no person occupying the seat immediately behind, and it will not impede the egress of any person in an emergency evacuation.

6 Cabin attendants

6.1 Subject to subsection 6A, aircraft engaged in charter or regular public transport operations shall carry cabin attendants appropriate to their passenger complement as follows:

(a) aircraft carrying more than 15 but not more than 36 passengers shall carry a cabin attendant, except that aircraft:

(i) carrying not more than 22 passengers, at least 3 of whom are infants or children; and

(ii) crewed by 2 pilots;

need not carry a cabin attendant if the duties and responsibilities of the flight crew concerning the briefing and control of passengers in normal and emergency operations are specified in the operations manual;

(b) aircraft carrying more than 36 but not more than 216 passengers shall carry at least 1 cabin attendant for each unit of 36 passengers or part thereof;

(c) aircraft carrying more than 216 passengers shall carry the number of cabin attendants as prescribed by CASA which shall not be less than 1 cabin attendant for each floor level exit in any cabin with 2 aisles;

(d) notwithstanding the specifications of (a), (b) and (c) above, in an aircraft in which cabin attendants are required to be carried, there shall be not less than 1 cabin attendant in each separate compartment occupied by passengers, and, where the number of cabin attendants used in the emergency evacuation demonstration required by section 20.11 was in excess of the numbers required by (a), (b) or (c) above, the number of cabin attendants on an aircraft shall be not less

(b) satisfies the requirements of subparagraph 6.1 (a)

need not be provided with an aisle, provided that the relevant requirements of section 20.11 can be complied with.

8 Smoking

Pursuant to paragraph 255 (2) (a) of the *Civil Aviation Regulations* 1988, a notice(s) specifying the periods during which smoking is prohibited may be permanently displayed in the crew compartment and toilets of all aircraft and in the passenger compartment of aircraft which have only 1 passenger compartment and a maximum take-off weight of 5 700 kg or less.

9 Stowage of loose articles

9.1 Loose articles in the cabin of an aircraft, including items of equipment and crew members and passengers' personal effects, shall be stowed so as to avoid the possibility of injury to persons or damage to the aircraft through the movement of such articles caused by in-flight turbulence or by unusual accelerations or manoeuvres.

9.2 Except as provided for in paragraph 4.2 of section 20.16.2 all aisles, passageways and exits shall be kept clear of obstructions when the aircraft has passengers on board and is in flight below 1 000 feet above terrain or, except when embarking or disembarking passengers, is on the ground.

9.3 All solid articles shall be placed in approved stowage at all times when seat belts are required to be worn in accordance with paragraph 4.1.

9.4 Approved stowage for solid articles means:

(a) under a passenger seat, where the stowage compartment has an approved means of preventing solid articles from shifting forwards; or

(b) in an overhead locker in accordance with the design weight limitation of the locker; or

(c) in any other locker or rack, excluding overhead racks, which have been designed to contain solid articles in flight.

Note Underseat stowage compartments which comply with the forward restraint provisions of section 103.10 are approved for the purposes of this section.

10 Passenger service

Except when in use, all items provided for passenger service, such as food containers, vacuum flasks and serving trays, shall be carried in their respective stowages and secured against movement likely to cause injury to persons or damage to the aircraft. In any case, all such items shall be stowed during take-off and landing.

11 Carriage of passengers in seats at which dual controls are fitted

11.1 Except as provided in paragraph 11.2, in all aircraft for which the Certificate of Airworthiness specifies a minimum crew of 1 pilot, a person may occupy a seat at which fully or partially functioning dual controls are fitted if the pilot gives adequate instruction to that person to ensure that the controls are not interfered with in flight and there is satisfactory communication available at all times between the pilot and that person.

11.2 In respect of aircraft engaged in regular public transport operations, the seat referred to in paragraph 11.1 shall not be occupied by a person other than a licensed pilot or an employee of the operator of the aircraft unless approved by CASA. Details of such an approval shall be included in the Operations Manual.

11.3 The provisions of these paragraphs shall not be construed as limiting the exercise of the authority of CASA in accordance with regulation 226 of the *Civil Aviation Regulations 1988*.

12 Passenger capacity

12.1 The number of passengers carried in an aircraft for which an emergency evacuation demonstration is required by subsection 15 of section 20.11 shall not exceed the number demonstrated or the number otherwise approved by CASA, except that when infants are carried the number may be increased by 5% (to the nearest whole number), provided the excess passengers are infants.

12.2 The number of passengers carried in an aircraft for which an emergency evacuation demonstration is not required may exceed the number of approved passenger seats fitted in the aircraft only if the excess number of passengers:

(a) has been approved by CASA; or

(b) does not exceed the number specified in column 2 of the following table opposite the number of passenger seats specified in column 1;

and the excess passengers are infants or children:

Table

Column 1 **No. of passenger seats**	**Column 2** **No. of excess passengers**
2-6	1
7-13	2
14-20	3
21-26	4
27-39	5
40-44	6

13 Carriage of infants and children

13.1 Where their combined weight does not exceed 77 kg, 2 children may occupy 1 seat if:

(a) seated side by side; and

(b) restrained by a lapstrap only; and

(c) the seat-belt is adjusted to secure both children at all times when a seat belt is required to be worn.

13.2 (1) An infant may be carried in the arms or on the lap of an adult passenger, in a bassinet or in an infant seat in accordance with paragraphs 13.3, 13.4, 13.5 and 13.6 providing the bassinet or infant seat is restrained so as to prevent it from moving under the maximum accelerations to be expected in flight and in an emergency alighting, and precautions are taken to ensure that, at the times seat belts are required to be worn, the infant will not be thrown from the bassinet or infant seat under these accelerations.

(2) When an infant is carried in the arms or on the lap of a passenger in accordance with subparagraph 13.2 (1) the seat belt, when required to be worn, shall be fastened around the passengers carrying or nursing the infant, but not around the infant.

(3) When an infant is carried in the arms or on the lap of a passenger in accordance with subparagraph 13.2 (1) on

an aircraft engaged in charter or regular public transport operations, the name of the infant shall be bracketed on the passenger list with the name of the person carrying or nursing the infant.

(4) An infant must not be carried in an exit seat during take-off or landing unless the pilot in command is satisfied that the infant's presence in the seat will not obstruct or hinder the escape of other persons from the aircraft.

(5) In subparagraph (4), ***exit seat*** means a seat that is in a row of seats adjoining an exit.

13.3 An infant seat, being a seat designed for the seating and restraint of infants, must not be used on an aircraft unless CASA or a recognised authority has approved the seat in writing as being of a type that is suitable for use by infants in an aircraft.

13.4 In paragraph 13.3, ***recognised authority*** means the Civil Aviation Authority of the United Kingdom, the Federal Aviation Administration of the United States of America or the authority of another country that is responsible for the safety of air navigation and that CASA declares in writing to be a recognised authority for the purposes of paragraph 13.3.

13.5 An infant seat must not be used on an aircraft:

(a) if it is secured to a side-facing seat; or

(b) unless it is secured at all times during the flight, by means of a seat belt or as otherwise approved, to a seat ordinarily used by an adult passenger.

13.6 The use of an infant seat on an aircraft is subject to such conditions (if any) of which CASA notifies the operator of the aircraft in writing.

14 Persons or passengers who require assistance due to sickness, injury or disability

14.1 The operator of an aircraft must, as much as possible, identify any person on the aircraft who requires assistance due to sickness, injury or disability.

14.2 The operator and pilot in command of an aircraft must ensure that any person who requires assistance due to sickness, injury or disability is not seated where he or she could obstruct or hinder access to any emergency exits.

14.3 If a person who requires assistance due to sickness, injury or disability is carried on an aircraft, the operator and pilot in command must:

(a) take all reasonable precautions to prevent hazards to other persons on the aircraft; and

(b) ensure that there are procedures in place to enable particular attention to be given to any such passenger in an emergency; and

(c) ensure that individual briefings on emergency procedures are given to any such person in accordance with Civil Aviation Order 20.11.

14.4 The carriage of stretcher patients on any aircraft must be in accordance with the following requirements:

(a) the stretcher must be secured in the aircraft so as to prevent it from moving under the maximum acceleration likely to be experienced in flight and in an emergency alighting such as ditching;

(b) the patient must be secured by an approved harness to the stretcher or aircraft structure.

Note Psychiatric restraint equipment is not an approved harness for this purpose.

15 Carriage of parachutists

15.1 Where a parachutist is not provided with a seat of an approved type, he or she shall be provided with a position where he or she can be safely seated.

15.2 During the times specified in paragraph 3.1, he or she shall, except when he or she is about to jump:

(a) occupy a seat or a seating position;

(b) wear, adjusted to ensure adequate restraint;

(i) a seat belt; or

(ii) a safety harness; or

(iii) a parachute connected to an approved single point restraint.

minimum equipment list means a list that provides for the operation of aircraft with permissible unserviceabilities, subject to compliance with such conditions, if any, as CASA directs under subregulation 37 (2) of CAR 1988.

permissible unserviceability means any defect or damage that CASA has approved under subregulation 37 (1) of CAR 1988 as a permissible unserviceability.

TAWS-B+ system means a terrain awareness and warning system that is equipped with a visual display and complies with the requirements for Class B equipment expressed in (E)TSO-C151, (E)TSO-C151a or (E)TSO-C151b.

2.2 In this Order, a reference to an (E)TSO, a TSO or an ETSO, as defined in subsections 9B and 9D, with an empty bracket at the end of the reference, includes the (E)TSO, TSO or ETSO in a version that contains a number within the bracket.

3 Instrumentation for flight under the Visual Flight Rules (the V.F.R.)

RPT aeroplanes and large charter aeroplanes

3.1 An aeroplane engaged in:

(a) a regular public transport (***RPT***) operation; or

(b) a charter operation that has maximum take-off weight exceeding 5 700 kg — a charter operation;

may only be operated under the V.F.R. if it is equipped with the following:

(c) the instruments specified in Appendix II;

(d) any other instruments and indicators specified in the aeroplane's flight manual.

Note ***V.F.R***. and ***flight manual*** are defined in subregulation 2 (1) of CAR 1988.

Helicopters

3.2 Subject to paragraph 3A.1, a helicopter may only be operated under the V.F.R. by day if it is equipped with the following:

(a) the instruments specified in Appendix VI;

(b) any other instruments and indicators specified in the helicopter's flight manual.

3.2A A helicopter may only be operated under the V.F.R. at night if:

(a) it is equipped with the instruments specified in Appendix VIII; and

(b) it is equipped with any other instruments and indicators specified in the helicopter's flight manual;

(c) for flights under V.F.R. at night which involve flights over land or water where the helicopter's attitude cannot be maintained by the use of visual external surface cues as a result of lights on the ground or celestial illumination:

(i) the helicopter is equipped in accordance with subparagraph 4.2 (d) of this Order; or

(ii) the helicopter is operated by a qualified 2 pilot crew, each with access to flight controls.

Hot air balloons and hot air airships

3.3 Subject to paragraph 3A.2, a hot air balloon and a hot air airship may only be operated under the V.F.R. if the balloon or airship is equipped with the following:

(a) the instruments specified in Appendix X;

(b) any other instruments and indicators specified in the flight manual of the balloon or airship.

Other aircraft in private, aerial work or charter operations

3.4 Subject to paragraph 3A.3, an aircraft:

(a) engaged in a private, aerial work or charter operation; and

(b) not mentioned in paragraphs 3.1 to 3.3;

may only be operated under the V.F.R. if it is equipped with the following:

(c) the instruments specified in Appendix I;

(d) any other instruments and indicators specified in the aircraft's flight manual.

3A Operations to which flight and navigation equipment requirements do not apply

3A.1 Paragraph 3.2 does not apply to a helicopter that operates under the V.F.R., and for which an experimental certificate has been issued under paragraph 21.191 (g) or (h) of CASR 1998, if equipment is carried that provides a pilot with the same information that would be obtained by compliance with the requirements of Appendix VI for operations by day, or Appendix VIII if approved for operations by night.

3A.2 Paragraph 3.3 does not apply to a balloon that operates by day under the V.F.R.:

(a) being an aircraft for which a current certificate of airworthiness as a light sport aircraft (***LSA***) has been issued; or

(b) being an aircraft for which an experimental certificate has been issued under paragraph 21.191 (g), (h) or (j), or an LSA for which an experimental certificate has been issued under paragraph 21.191 (k), of CASR 1998;

if equipment is carried that provides a pilot with the same information that would be obtained by compliance with the requirements of Appendix X.

3A.3 Paragraph 3.4 does not apply to any other aircraft that operates under the V.F.R.:

(a) being an aircraft for which a current certificate of airworthiness as an LSA has been issued; or

(b) being an aircraft for which an experimental certificate has been issued under paragraph 21.191 (g), (h) or (j) or an LSA for which an experimental certificate has been issued under paragraph 21.191 (k), of CASR 1998;

if equipment is carried that provides a pilot with the same information that would be obtained by compliance with the requirements of Appendix I for operations by day, or Appendix IV if approved for operations by night.

3A.4 An aircraft referred to in paragraphs 3A.1 to 3A.3 that is approved to operate at night and is equipped with an Electronic Flight Information System (***EFIS***), or other means of electronically displaying the required information, must be provided with a battery-powered back-up, or another form of instrumentation independent of the aircraft electrical system, that is approved by an authorised person as suitable, in the case of a failure of the aircraft electrical system, for the purpose of enabling the pilot to divert to and use a safe landing site.

3A.5 If an aircraft equipped as required under paragraph 3A.4 has a battery-powered back-up to an EFIS, the back-up must be of sufficient capacity to power the EFIS panel or other display for 90 minutes and must be fully charged before the commencement of a flight at night.

3A.6 Subject to paragraph 3A.7, an Australian registered aircraft may be operated without compliance with the flight and navigation equipment requirements in subsections 3 and 4 of this Order if it

can show compliance with an equivalent level of safety, as determined by the type certificating authority for the aircraft, taking into consideration its intended operation.

3A.7 The type certificating authority for the aircraft must be a recognised authority.

3A.8 In paragraph 3A.7:

recognised authority means an authority of a country listed in regulation 21.012 of CASR 1998.

4 Equipment for flight under the Instrument Flight Rules (the *I.F.R.*)

4.1 Subject to subsection 3A, an aeroplane must not be operated under the I.F.R. unless it is equipped with:

(a) the flight and navigation instruments specified in Appendixes II, III and IV to this Order, as applicable; and

(b) any other instruments or indicators specified in the aeroplane flight manual; and

(c) the minimum lighting equipment specified in Appendix V to this Order; and

(e) in the case of single pilot RPT operations, earphones for the pilot with boom or throat microphone and a press to transmit control on the control column. The earphones and microphone must be compatible with the radio installation in the aeroplane and must be used by the pilot during flight.

4.1A Subject to paragraphs 4.1B and 4.1C, an aeroplane engaged:

(a) in RPT operations; or

(b) in charter operations; or

(c) in aerial work operations as an air ambulance or for a flying doctor service;

must not be operated under the I.F.R. unless it is equipped with a serviceable automatic pilot approved by CASA that has the following capabilities:

(d) a capability of operating the flight controls to maintain flight and manoeuvre the aeroplane about the roll and pitch axis;

(e) an automatic heading capability;

(f) an altitude hold capability.

Note For the purpose of meeting the requirements of subparagraph 4.1A (d), an automatic pilot is taken to have the capability of manoeuvring the aeroplane

(b) at least 1 of the following applies for the flight:

(i) flight with unserviceable equipment has been approved by CASA, in writing, subject to such conditions as CASA specifies;

(ii) the unserviceability is a permissible unserviceability set out in the minimum equipment list for the aircraft, and any applicable conditions under subregulation 37 (2) of CAR 1988 have been complied with;

(c) ATC clears the flight despite the unserviceability.

10 Serviceability

10.1 In the case of a charter or RPT aircraft, all instruments and equipment that it carries, or is fitted with, under subregulation 207 (2) of CAR 1988 must be serviceable before take-off, unless:

(a) flight with unserviceable instruments or equipment has been approved by CASA, subject to such conditions as CASA specifies; or

(b) the unserviceability is a permissible unserviceability set out in the minimum equipment list for the aircraft and any applicable conditions under subregulation 37 (2) of CAR 1988 have been complied with; or

(c) CASA has approved the flight with the unserviceable instrument or equipment and any applicable conditions that CASA has specified, in writing, have been complied with; or

(d) the unserviceable instrument or equipment is a passenger convenience item only and does not affect the airworthiness of the aircraft.

Note Equipment referred to in paragraph 10.1 includes oxygen and protective breathing equipment, emergency lifesaving equipment, seats, seat belts and safety equipment that are required to meet an applicable standard, and other instruments and equipment required to be carried or fitted under this Order.

10.1A A private or aerial work aircraft must not be operated:

(a) under the V.F.R., unless:

(i) all instruments and equipment required to be fitted to the aircraft under subsection 3 are serviceable before take-off; or

(ii) CASA has approved the flight with the unserviceable instrument or equipment and any applicable conditions that CASA has specified, in writing, have been complied with; or

(b) under the I.F.R., unless:

(i) all instruments and equipment required to be fitted to the aircraft under subsection 4 are serviceable before take-off; or

(ii) CASA has approved the flight with the unserviceable instrument or equipment and any applicable conditions that CASA has specified, in writing, have been complied with.

10.2 Where flight is conducted with unserviceable instruments or equipment under the provisions of paragraph 10.1 or 10.1A, the unserviceable instruments or equipment must be prominently placarded "UNSERVICEABLE" or removed from the aircraft.

Note Where an instrument or piece of equipment performs more than 1 function, it is permissible to placard as unserviceable only the function(s) which are unserviceable.

10.3 The holder of an AOC authorising an RPT operation must:

(a) have a minimum equipment list or lists for the aircraft used to conduct those operations; and

(b) include each list in the operations manual for the aircraft to which that list applies.

10.4 The holder of an AOC authorising charter operations:

(a) may have a minimum equipment list or lists for the aircraft used to conduct those operations; and

(b) must include each list in the operations manual for the aircraft to which that list applies.

Appendix I

Instruments required for flight under the V.F.R.

(Limited to aircraft specified in subsection 3, paragraph 3.1)

1 The flight and navigational instruments required for flights under the V.F.R. are:

(a) an airspeed indicating system; and

(b) an altimeter, with a readily adjustable pressure datum setting scale graduated in millibars; and

(c) (i) a direct reading magnetic compass; or

(ii) a remote indicating compass and a standby direct reading magnetic compass; and

(d) an accurate timepiece indicating the time in hours, minutes and seconds. This may be carried on the person of the pilot or navigator.

2 In addition to the instruments required under clause 1, aircraft, other than helicopters, engaged in charter, or aerial work, operations and operating under the V.F.R., must be equipped with:

(a) a turn and slip indicator (agricultural aeroplanes may be equipped with a slip indicator only); and

(b) an outside air temperature indicator when operating from an aerodrome at which ambient air temperature is not available from ground-based instruments.

Appendix II

Instruments required for:

(i) aeroplanes engaged in RPT operations; and

(ii) aeroplanes engaged in charter operations which have a maximum take-off weight greater than 5 700 kg

1 The flight and navigation instruments required are:

(a) an airspeed indicating system with means of preventing malfunctioning due to either condensation or icing; and

(b) 2 sensitive pressure altimeters; and

(c) (i) a direct reading magnetic compass; or

(ii) a remote indicating compass and a standby direct reading magnetic compass; and

(d) an accurate timepiece indicating the time in hours, minutes and seconds; and

(e) a rate of climb and descent indicator (vertical speed indicator); and

(f) an outside air temperature indicator; and

(g) 2 attitude indicators (artificial horizons); and

(h) a heading indicator (directional gyroscope or equivalent approved by CASA); and

(i) a turn and slip indicator except that only a slip indicator is required when a third attitude indicator usable through flight attitudes of 360 degrees of pitch and roll is installed in accordance with paragraph (k) of this Appendix; and

(j) a means of indicating whether the power supply to those instruments requiring power is working satisfactorily; and

(k) in turbo-jet aeroplanes having a maximum take-off weight greater than 5 700 kg and in turbo-prop aeroplanes having a maximum take-off weight greater than 18 000 kg a third attitude indicator which:

(i) is powered from a source independent of the electrical generating system; and

(ii) continues to provide reliable indications for a minimum of 30 minutes after total failure of the electrical generating system; and

Appendix III

Instruments required for aeroplanes with a maximum take-off weight not greater than 5 700 kg engaged in charter operations under the I.F.R. (except night V.M.C.) excluding freight only charter operations

1 The flight and navigation instruments required are:

(a) an airspeed indicating system with means of preventing malfunctioning due to either condensation or icing; and

(b) 2 sensitive pressure altimeters; and

(c) (i) a direct reading magnetic compass; or

(ii) a remote indicating compass and a standby direct reading magnetic compass; and

(d) an accurate timepiece indicating the time in hours, minutes and seconds; and

(e) a rate of climb and descent indicator (vertical speed indicator); and

(f) an outside air temperature indicator; and

(g) 2 attitude indicators (artificial horizons); and

(h) a heading indicator (directional gyroscope or equivalent approved by CASA); and

(i) a turn and slip indicator except that only a slip indicator is required when a third attitude indicator usable through flight attitude of 360 degrees pitch and roll is installed; and

(j) a means of indicating whether the power supply to the gyroscopic instruments is working satisfactorily; and

(k) in turbo-jet aeroplanes with operating limitations expressed in terms of Mach number, a Mach number indicator (Machmeter).

2 The instruments specified in paragraphs 1 (a), (b), (e) and (k) of this Appendix must be capable of being connected to either a normal or alternate static source but not both sources simultaneously. Alternatively, they may be connected to a balanced pair of flush static ports.

3 The instruments specified in paragraphs 1 (g), (h) and (i) of this Appendix must have duplicated sources of power supply.

4 CASA may, having regard to the type of aeroplane, approve an attitude indicator incorporated in an automatic pilot system as

being 1 of the 2 attitude indicators required by paragraph 1 (g) of this Appendix.

5 A gyro-magnetic type of remote indicating compass installed to meet the requirements of subparagraph 1 (c) (ii) of this Appendix may also be considered to meet the requirement for a heading indicator specified in paragraph 1 (h) of this Appendix, provided it has a duplicated power supply.

Appendix IV

Instruments required for aeroplanes engaged in:

(i) aerial work and private operations under the I.F.R. (including night V.M.C.); and

(ii) charter operations under night V.M.C; and

(iii) I.F.R. freight only charter operations in aeroplanes with maximum take-off weight not greater than 5 700 kg.

1 The flight and navigational instruments required are:

(a) an airspeed indicating system; and

(b) a sensitive pressure altimeter; and

(c) (i) direct reading magnetic compass; or

(ii) a remote indicating compass and a standby direct reading magnetic compass; and

(d) an accurate timepiece indicating the time in hours, minutes and seconds, except that this may be omitted if it is carried on the person of the pilot or navigator; and

(e) a rate of climb and descent indicator (vertical speed indicator) for other than night V.M.C. flights; and

(f) an outside air temperature indicator; and

(g) an attitude indicator (artificial horizon); and

(h) a heading indicator (directional gyroscope); and

(i) a turn and slip indicator except that only a slip indicator is required when a second attitude indicator usable through flight attitudes of 360 degrees of pitch and roll is installed; and

(j) means of indicating whether the power supply to the gyroscopic instruments is working satisfactorily; and

(k) except for aeroplanes engaged in night V.M.C. flights, means of preventing malfunctioning due to either condensation or icing of at least 1 airspeed indicating system.

2 The instruments specified in paragraphs 1 (a), (b), (e) and (k) of this Appendix must be capable of being connected to either a normal or an alternate static source but not both sources simultaneously. Alternatively, they may be connected to a balanced pair of flush static ports.

3 Except for aeroplanes engaged in night V.M.C. private and aerial work operations the instruments specified in paragraphs 1 (g), (h) and (i) of this Appendix must have duplicated sources of power supply unless the turn and slip indicator or the second attitude indicator specified in paragraph 1 (i) has a source of power independent of the power operating other gyroscopic instruments.

4 A gyro-magnetic type of remote indicating compass installed to meet the requirements of subparagraph 1 (c) (ii) of this Appendix may be considered also to meet the requirement for a heading indicator specified in paragraph 1 (h) of this Appendix, provided that such installation complies with the power supply requirements of clause 3 of this Appendix.

Civil Aviation Amendment Order (No. R25) 2004 as amended

made under subregulation 150 (2) of the *Civil Aviation Regulations 1988*.

This compilation was prepared on 15 January 2015 taking into account amendments up to *Civil Aviation Order (Flight Crew Licensing) Repeal and Amendment Instrument 2014 (No. 1)*.

Prepared by the Legislative Drafting Section, Legal Branch, Legal Services Division, Civil Aviation Safety Authority, Canberra.

1 Name of Order

This Order is the Civil Aviation Amendment Order (No. R25) 2004.

2 Commencement

This Order commences on gazettal.

3 Replacement of section 29.5 of the Civil Aviation Orders

Section 29.5 of the Civil Aviation Orders is omitted and a new section substituted as set out in Schedule 1.

Schedule 1 Substitution of section 29.5 of the Civil Aviation Orders

Section 29.5

Air service operations — miscellaneous dropping of articles from aircraft in flight

1 Application

This section applies to all Australian aircraft except those aircraft engaged in aerial application operations or aerial application training operations.

1A Definitions

In this Order:

aerial application operation has the meaning given by regulation 61.010 of the *Civil Aviation Safety Regulations 1998*.

aerial application training operation means flight training for aerial application operations.

2 Directions relating to dropping of articles

2.1 This subsection deals with directions for the purposes of paragraph 150 (2) (a) of the *Civil Aviation Regulations 1988*.

2.2 In respect of dropping for the purposes of cloud seeding or search and rescue operations, the directions set out in subsections 4 and 5 apply.

2.3 In respect of dropping for the purposes of search and rescue training operations, the directions set out in subsections 3, 4 and 5 apply.

2.3.1 In respect of the release of liquid fuel, the directions set out in subsection 8 apply.

2.4 In respect of dropping for purposes other than those mentioned in paragraphs 2.2, 2.3 and 2.3.1, the directions set out in subsections 3, 4, 5 and 7 apply.

Note 1 The directions specified in this Order do not confer any rights as against the owner of any land over which the operations may be conducted, or prejudice in any way the rights and remedies which any person may have in common law in respect of any injury to persons or damage to property caused directly or indirectly during the operations.

3 Dropping site

Dropping shall not be carried out within a control zone, within an aircraft lane of entry, or within 5 miles of a Government or licensed aerodrome, without the approval of CASA.

4 Dropping requirements

4.1 The articles or substances shall be carried inside the aircraft or in a manner specified in the flight manual or otherwise approved by CASA.

4.2 The opening through which the articles or substances are dropped shall be located so that the articles or substances, on release, will not damage or affect the operation of any part of the aircraft.

4.3 The size to weight ratio of individual articles shall be such that they will drop readily away from the aircraft.

4.4 For articles other than leaflets or substances not in the form of liquid, powder or fine grains, the dropping site shall be of such

dimensions that there is no risk of the articles or substances falling outside the site.

4.5 Articles, other than leaflets or substances not in the form of liquids, powder or fine grains, shall not be dropped on a site unless it is clear of persons and stock.

4.6 The size of the leaflets and the number dropped at any one time shall be limited to an extent which will ensure that injury is not caused to persons on the ground if the leaflets fail to separate while dropping.

4.7 The dropping of articles or substances shall be controlled by a person other than the pilot in command (hereinafter referred to as the despatcher), unless the dropping can be carried out by the pilot in command from his normal crew station and without affecting his ability to control the aircraft normally.

4.8 Effective communication shall be maintained between the pilot in command and the despatcher during the dropping operation and the articles or substances shall be dropped only with the consent of the pilot in command.

Note In this Order, ***dropping operation*** means that part of the flight during which the aircraft is on the final approach path to the dropping site or target, and during which only minor changes of heading, airspeed and altitude are made.

4.9 The pilot in command shall ensure that movement of articles or substances during flight preparatory to dropping, during the dropping and after the dropping will not result in any change in aircraft trim that could cause an unsafe condition or cause the aircraft's centre of gravity to move outside permissible limits.

4.10 The operator shall ensure that the despatcher is properly instructed in his duties.

4.11 The pilot in command must be authorised under Part 61 of the *Civil Aviation Safety Regulations 1998* to conduct the activity.

5 Carriage of articles and persons

5.1 The carriage of articles or substances prior to dropping shall be in accordance with section 20.16.2.

5.2 Except with the permission of CASA, no person other than the persons having duties relating to the operation shall be carried in an aircraft engaged in operations during which dropping is carried out.

5.3 During dropping operations, each person on board except despatchers shall occupy a separate seat equipped with an approved safety belt or harness which shall be worn adjusted to ensure adequate restraint.

5.4 Where the dropping aperture is large enough for a person to fit through, all occupants except despatchers shall remain seated whenever the aperture is open.

5.5 A despatcher need not be provided with a seat but a position where he may sit shall be provided and equipped with an approved safety belt or harness.

5.5.1 A despatcher shall remain seated and wear a safety belt or harness adjusted to ensure adequate restraint:

(a) during take-off and landing; and

(b) during an instrument approach.

5.5.2 Except during dropping operations a despatcher shall remain seated and wear a safety belt or harness adjusted to ensure adequate restraint:

(a) in turbulent conditions; and

(b) when the aircraft is flying at a height of less than 100 feet above the terrain.

5.6 A despatcher shall wear approved restraint equipment during dropping operations and this equipment may permit him to move to but not through the dropping aperture.

6 Low flying permit

6.1 Subject to subsection 7 and pursuant to paragraph 157 (4) (b) of the *Civil Aviation Regulations 1988*, CASA grants a general permit:

(a) to each owner and operator of an aeroplane that is engaged in private, or aerial work, operations that require low flying (being dropping operations associated with search and rescue training) to fly at a height not lower than 100 feet during such operations; and

(b) to each owner and operator of an aircraft (other than an aeroplane) that is engaged in private, or aerial work, operations, being:

(i) dropping operations associated with search and rescue training; or

(ii) other dropping operations or practice for such operations;

to fly at a height lower than 500 feet during such operations over any area that is not a populous area.

7 Operating conditions

7.1 An aircraft must not fly over any populous area at a height lower than 1 000 feet above the terrain, unless a flight at a lower height is essential to the efficient conduct of a dropping operation and such an operation is occasioned by an emergency.

7.2 Except with the permission of CASA, dropping operations shall be conducted by day only, in accordance with visual flight rules, and in continuous sight of the ground or water.

8 Directions relating to the release of liquid fuel

8.1 If paragraph 150 (2) (d) of the *Civil Aviation Regulations 1988* does not apply, a pilot in command may only release fuel in accordance with the *Air Navigation (Fuel Spillage) Regulations 1999*.