

New Zealand Aeromedical / Air SAR Standard

Version 4.0: August 1st 2024

This version of the Standard takes effect from 1st August 2024

Transition period of six months – 1st February 2025



Aviation
INDUSTRY
ASSOCIATION

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REVIEW PERIOD

It is intended that this Standard remains a dynamic document, reflecting the challenges and changes experienced by the NZ aeromedical and air SAR sector.

A regular review of the Standard is required to ensure it remains appropriate and applicable. Whilst intended to review this publication every three years, a revision of V3 2018 was deferred due to constraints associated with the Covid 19 pandemic. The next review is anticipated to occur in 2027.

Recommendations for change:

- The document, its content and specific processes are not to be altered except through the Standards Administrator (dwaters@ambnz.org.nz) document management processes.
- Requests or recommendations for changes to this material should be sent to the Standards Administrator - dwaters@ambnz.org.nz

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EFFECTIVE DATE

This Standard originally came into effect in January 2011. From that date all services covered by the scope of this Standard shall demonstrate compliance through independent audit from the date their current Certification expires. The effective date of this version [V4] is 1 August 2024. Operators are expected to fully comply within six months of the publication date being 1st October 2024.

REVIEW HISTORY

Version	Review Date	Issue Date
Ambulance New Zealand / AIA Air Ambulance Air Search & Rescue Standard V1.0	Initial Issue	1 Jan 2011
Ambulance New Zealand / AIA Air Ambulance Air Search & Rescue Standard V2.0	2012	1 Jan 2013
Ambulance New Zealand Aeromedical / Air Rescue Standard V3.0	2016-17	1 July 2018
Ambulance New Zealand Aeromedical / Air SAR Standard V4.0	2023-24	1 August 2024

APPROVAL TO PUBLISH

Version 4 of this Standard was developed by Ambulance New Zealand.

FOREWORD

The goal of this Standard is to ensure the service provided by aeromedical services and air SAR services in New Zealand meet industry best practice, while remaining patient, or recipient, focus. The Standard promotes national consistency and risk management practices to ensure the safety of the crew and the patient remains paramount in all aspects of aeromedical and air rescue service provision.

The concept of predictive and pro-active safety and risk minimisation underpins the ongoing development of this document. Service providers wishing to provide these services must meet the standards contained within this document.

This Standard has been developed, critiqued and peer-reviewed by the providers of aeromedical services and air rescue services [including clinical services]. Consultation and communication with key stakeholder organisations such as Health New Zealand | Te Whatu Ora, Accident Compensation Corporation (ACC), Aviation Industry Association (AIA), NZSAR Secretariate, National Air Desk, Civil Aviation Authority (CAA) and other organisations, including aeromedical providers and health sector experts has provided valued input to the Standard.

Service providers are required to demonstrate compliance to this Standard through independent (third-party) certification to ensure the operators' Management Systems specific to the provision of aeromedical/air ambulance services remain demonstrably effective and are amended and updated in line with developments in aviation and air medical technology and techniques.

The Standard sets minimum requirements for pilots, crew, clinical services, aircraft, and role equipment in the aeromedical/air SAR context. This Standard also compliments the framework for the contracting of aeromedical and air search and rescue services throughout New Zealand by Health New Zealand | Te Whatu Ora and the Accident Compensation Corporation (ACC). It is therefore pleasing to note that this Standard has been endorsed by many of the sector's key stakeholders.

I would like to thank the many individuals who have contributed to this Standard. In particular, we would like to recognise the significant input provided by the Expert Panel whose experience and knowledge have made the development of this Standard possible.

Signed: 1st August 2024



David Waters | Chief Executive Ambulance NZ



Simon Wallace | Chief Executive AIA

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SECTION 1 GENERAL PROVISIONS

1.1 Purpose

The purpose of the document is to establish and clarify standards reflective of industry best practice for the provision of aeromedical and air search and rescue (SAR) services within New Zealand where these are not already prescribed by legislation.

The document provides a framework by which rules governing provision of aerial transport of patients, air search and rescue, and associated clinical services are effectively and demonstrably supplemented by the individual provider's Safety Management Systems [SMS] and/or Quality Management System (QMS).

1.2 Assumptions

The Standard assumes all legislative requirements upon service providers are met and are monitored by the operator's internal quality and safety systems and the responsible regulatory jurisdiction e.g. Civil Aviation Authority, Worksafe, Medsafe, Paramedic Council of New Zealand and other clinical regulators.

Conformance with this standard does not infer compliance with legislation.

It remains the responsibility of the aeromedical or air SAR service provider to ensure they maintain compliance with all relevant legislation.

1.3 Applicability

This Standard applies to:

- Out of hospital and Inter hospital aeromedical services by helicopter and fixed wing aircraft.
 - Rotary assets - Group 1 [Multi-engine IFR], Group 2 [Multi-engine VFR], and nominated back-up helicopter airframes.
 - Fixed wing assets - Group 1 [Multi-engine IFR], Group 2 [Multi-engine VFR], Group 3 [Single-engine turbo prop IFR].
- Pilots, crewmembers, paramedics other flight clinicians and aeromedical specialists.
- Air search and rescue specialist responses.
- Hospital, and other emergency health service heliports.

1.4 Legislation and Other Standards of Relevance

The following legislation (current version) is referenced in this Standard:

- Health and Safety at Work Act, and
 - HSWA Hazardous Substances Regulations, (as applicable).
- Civil Aviation Act
- Civil Aviation Rules – in particular, CAR 100 Safety Management, and
 - AC 100-1

Reference is made in this Standard to the following National and International Standards:

- AS NZS 1891.1 Industrial fall arrest and devices Part 1 Safety belts and harnesses
- AS NZS3551 Technical management programs for medical devices
- NZS 4535 Ambulance restraint systems
- ISO/IEC 17021 Conformity Assessment – requirements for bodies providing audit and certification of management systems.
- ISO 9001 Quality management systems
- ISO 31000 Risk management – Guidelines
- ISO 45001 Occupational health and safety management systems
- NZS 8156 Ambulance, paramedicine and patient transfer services.

1.5 Interpretation and Key Definitions

For the purposes of this Standard, the word 'shall' refers to practices that are mandatory for compliance with this Standard, while the word 'should' refers to practices that are advised or recommended.

1.6 Administration of the Standard

If any section of this Standard becomes conflicted with the Civil Aviation Act and Civil Aviation Rules, then the Civil Aviation Act and Civil Aviation Rules take precedence. The Administrator of this Standard shall be notified and will arrange to have the conflict resolved in the Standard.

Request for changes, updates or corrections please contact:

Standard's Administrator - Email - dwaters@ambnz.org.nz

1.7 Temporary Non-conformance with the Standard

It is recognised that in certain circumstances, compliance with a particular element of this Standard may be unable to be fully met. Where an aeromedical or air SAR service provider seeks non-conformance with a requirement of the Standard for a temporary period the following exemption procedure shall apply:

- The Operator shall prepare a comprehensive exemption application.
- The application shall be in a risk-based format outlining:
 - Overview of applicant's service provision;
 - Requirement from which non-conformance/exemption is sought;
 - Reason(s) why the requirement cannot be complied with;
 - Identification, analysis and quantification of hazards, risks, and limitations to service provision resulting from the non-conformance;
 - A structured Risk Management Plan, derived from the service provider's Safety Management System [SMS] demonstrating how those hazards, risks and limitations will be controlled/managed to ensure that they remain acceptable to the SMS, and management of the residual risk ensures an equivalent level of safety is maintained;
 - The anticipated passage of time until compliance with the element will be achieved;
 - Any limitations on service provision capability during the period of non-conformance;
 - If applicable – the number of other non-conformances/exemptions that are in force under this provision, with the service provider.
- The Operator shall have the exemption application peer-reviewed by a three-person independent expert exemption panel and consider any resultant recommendation arising from that review.
- The Operator shall apply the following criteria in selecting 3 relevant independent experts for the Exemption Panel:
 - Experienced aeromedical management, e.g. Chief Pilot for at least 3 years, Operations Manager, SAR Manager, etc.; and
 - Technical competence and knowledge of the area of standard the exemption involves; and
 - Experienced aeromedical or SAR Management in the category of aircraft that the exemption involves; and
 - Has declared in writing they have no conflict of interest in determining the exemption or outcome.
- The Operator shall nominate a person(s) who shall be responsible for adherence to the declared process and to whom any enquiries may be directed.

- The nominated person responsible shall advise the Operator as soon as practicable of any reportable incidents or accidents related to, and during the period of the non-conformance.
- All documentation and correspondence relating to this provision shall be held in the Operator's Safety Management System (SMS) for a period of 24 months following return to compliance and be available to the third-party auditors on request.

Note: A template is included as Appendix B

1.8 Compliance Responsibilities – Health and Safety at Work Act (HSWA)

1.8.1 HSWA Compliance

As PCBU's, aeromedical/air SAR service providers are individually responsible for their compliance with the Health and Safety at Work Act.

For clarification, the Director of Civil Aviation holds a delegation for oversight of health and safety 'in the aviation sector,' which includes:

- work to prepare an aircraft for imminent flight,
- work on-board an aircraft for the purpose of imminent flight, or while in operation, and
- aircraft as a workplace while in operation.

All activities outside of the above definitions are overseen by WorkSafe New Zealand.

1.8.2 Duty of care

As PCBU's, the aeromedical/air SAR operator has a duty of care to communicate with stakeholders (PCBUs with overlapping duties/responsibilities) when that stakeholder has employees onboard an operator's aircraft. The operator shall communicate that they have considered, managed and/or mitigated the risks the stakeholder's personnel may be exposed to during provision of the service to a level considered acceptable to the operator. This may be achieved by providing a copy of the risk register including mitigations to the affected parties or a standard letter communicating the risks and any mitigations.

1.9 Quality Management Systems

The service provider shall implement and maintain ISO 9001 across all areas of operation.

1.10 Safety Management Systems

The service provider shall implement and maintain a Safety Management System (SMS) based on CAA AC 100-1 and ISO 31000 2018 Risk Management – Guidelines.

CAA approval of the SMS shall be recorded in sect. 13 of the organisation's Operations Specifications.

1.11 Incident Reporting Systems

The service provider shall maintain an incident reporting system within their SMS tailored to the provision of aeromedical/air SAR operations that complies with WorkSafe reporting requirements. The incident reporting system shall provide evidence of:

- Being inclusive of all aspects of the operation (e.g., organisational, operations, clinical, facilities, human factors, equipment, environment, third party).
- An active and effective reporting culture.
- Top-down [Mgmt.] support for reporting of incidents and documented evidence that a Just Culture is promoted, explained to, and understood by, all staff.
- Ability for reporting 'in confidence'.
- Induction/education of crews to understand incident definitions and reporting requirements (as applicable) of:
 - Internal/organisational reporting protocols in accordance with the operator's SMS;
 - Clinical adverse events reporting protocols (HQSC Adverse Event Reporting Template), in accordance with NZS 8156;
 - CAA reporting requirements CA005, s13a (s16 from the 5th April 2025), in accordance with CAR Part 12 and AC12-1.
 - WorkSafe notifications.
- Closed-loop feedback of outcomes to reporters of incidents.
- A system for dissemination of internal incident reports to minimise the likelihood of incidents reoccurring.
- Evidence that incident trends are identified, reviewed, measured and acted on with appropriate mitigations in place to prevent recurrence.

SECTION 2 PILOTS

2.1 Pilot in Command (PIC)

Outcome 2.1 The operator shall ensure their pilots have the required experience, training and competency to provide the safe operation of the aircraft in flight and maintain the safety and wellbeing of all passengers and crew.

Criteria 2.1.1 In addition to the fundamental legislative pilot in command responsibilities, the operator shall have clearly documented specific responsibilities of pilots in the aeromedical context. Examples being effective TEM/CRM, fostering a 'crew mentality, mentoring/supervision of other pilots etc.

NOTE: Threat and Error Management (TEM) is an overarching safety concept regarding aviation operations and human performance. TEM is not a revolutionary concept, but one that has evolved gradually, as a consequence of the constant drive to improve the margins of safety in aviation operations through the practical integration of Human Factors knowledge.

Crew Resource Management (CRM) is the effective use of all available resources for flight crew personnel to assure a safe and efficient operation, reducing error, avoiding stress and increasing efficiency.

Criteria 2.1.2 Where co-pilots operate as part of a formal multi-crew environment, their duties and responsibilities shall be documented in the operator's multi-crew SOP.

Criteria 2.1.3 The operator shall have a program of pilot induction, mentoring, technical and non-technical upskilling, and continuous improvement. Records of these shall be kept with the pilot training records.

Criteria 2.1.4 All pilots shall hold the minimum qualifications outlined in **2.2: Minimum Pilot Qualifications**, and **Minimum Pilot Competency**

NOTE: Notwithstanding these minimum qualifications, pilots may enter the sector meeting, or exceeding these minimums, but not necessarily having the skills sets relevant to conduct day/night multi-crew aeromedical operations.

The service provider shall be able to demonstrate via its SMS how such gaps in skill sets will be identified and managed until a satisfactory level of competency in aeromedical operations is achieved.

- Criteria** **2.1.5** The operator's procedures shall include documented syllabi for:
- 2.1.5.1 Training for the various skills required
 - 2.1.5.2 Formal assessment of competence processes
 - 2.1.5.3 An adequate system of record-keeping
 - 2.1.5.4 The operator's SMS describes how these procedures are developed and amended.
- Pilots will require certain pre-requisite qualifications, followed by competency-based training and assessment for each type of aircraft flown on aeromedical and air SAR operations.
- Criteria** **2.1.6 Proficiency** - Proficiency in the required skill sets shall be documented in the operator's Pilot Authorisation Scheme.
- The pilot authorisation scheme shall indicate each skill set a pilot is authorised to perform
 - Use of 'grading' e.g. A – D, including the descriptor for each, should be used to stipulate the level of authorisation and required controls in each instance
 - The operator shall have a process to update the form to properly reflect the pilot's current authorisation status
 - The form shall be signed by both the person responsible for the authorisation and the pilot and reflect the date of the most recent update.
- NOTE:** An example template is included as Appendix C.
- Criteria** **2.1.7 Recency** - Each operator shall have in place a system to identify and alert management when a pilot's accumulated flight time falls below 30 hours over any consecutive 90 day rolling period. The operator shall be able to demonstrate that appropriate risk mitigation was considered / engaged if appropriate in the event of each alert indicating low pilot hour recency.
- NOTE:** The operator should apply the same procedure for perishable skills sets other than accumulated flight time e.g. night operations under NVG, Dry and Wet Winch evolutions, approaches and instrument hours per month.
- Criteria** **2.1.8 Competency** - Pilots shall have completed training and have been assessed as competent in accordance with the competency requirements of this Standard prior to being assigned to a task involving the applicable skill set.

2.2 Rotary Wing – Minimum Pilot Competency

Outcome: **2.2** The pilot’s experience shall be at a level necessary to safely operate a rotary wing aircraft within the potential range of environmental and metrological conditions likely to be experienced in an aeromedical or air search operation.

Criteria **2.2.1** The following requirements are considered to be the minimum pilot experience necessary to safely operate in each of the rotary wing aeromedical and air search categories.

Rotary Wing Groups 1 & 2 Minimum Pilot Qualifications

Rotary Wing: Group 1 & 2

Pilot Licence	Pilot in Command NZ CPL [H]* [**] [***]	Co Pilot NZ CPL [H]* [**] [***]
IFR Operations	NZ Instrument Rating (H) endorsed with: <ul style="list-style-type: none"> • Multi engine • GNSS or VOR Navaids • ILS and/or NDB (if planning to use these aids) <ul style="list-style-type: none"> ▪ Single pilot. May be multi-pilot endorsed if operating only in two-pilot crew per AC 61-17.	NZ Instrument Rating (H) endorsed with: <ul style="list-style-type: none"> • Multi engine • GNSS or VOR Navaids • ILS and/or NDB (if planning to use these aids) <ul style="list-style-type: none"> ▪ Single pilot. May be multi-pilot endorsed if operating only in two-pilot crew per AC 61-17.
Night Operations	Unrestricted night cross-country privileges Unless restricted to day operations only.	Unrestricted night cross-country privileges Unless restricted to day operations only.

* A validation issued by CAA (NZ), of an equivalent ICAO Licence may be used as a temporary measure (up to 6 months) while a New Zealand CPL(H) is being obtained.

** Some operators may require a Airline Transport Pilot Licence for Helicopters ATPL(H) as the minimum qualification for PIC.

*** When required to operate as a two-pilot crew in accordance with the Operator’s Expositions, the PIC shall hold an ATPL(H)

Rotary Wing Group 1 & 2 Minimum Pilot Competency

In addition to the Table below, pilots are to comply with any individual conditions or limitations attached to their Pilot Authorisation for the respective competencies.

	Training Standard	Competency Standard	Comments
Type rated on each helicopter type which the pilot operates.	AC61-10, and operator's procedures if type ratings are conducted by the operator.	AC61-10 Appendix VII and FTSG. Continued competency on type to be confirmed during Part 135.607 Flight crew competency assessment.	Multi-engine helicopter type rating training courses must be approved by CAA. See AC61-10. Operator's procedures to clearly explain requirements and frequency of competency checks on each type, when more than one type is flown.
Differences training between similar types.	As per operator's Part 119 or Part 141 certificate and approved training manual	AC61-10 paragraph 2.5.	Operator's procedures to clearly explain requirements for competency checks on similar types.
Flight crew competency assessment	Meets all applicable crew member requirements of Part 135 Subpart H.	Route and aerodrome check 12-monthly as per CAR 135.607(1). VFR competency check 12-monthly as per CAR 135.607(2) IFR competency check 6-monthly (if applicable) as per CAR 135.607(3). <u>Written</u> test of pilot's knowledge 12-monthly as per CAR 135.607(4).	Operator's procedures to detail any specific items that must be included in each check. Rotation of IFR checks between types permitted as per CAR 135.607(3) to be clearly explained in operator's procedures. A written test is required.
Instrument Rating continued competency (*Optional if restricted to VFR only)		Annual competency demonstration as per CAR 61.807 Ongoing currency as per CAR 61.807	Operator's procedures to clearly explain requirements for competency checks for single pilot IFR, night and IMC requirements
NVIS Pilot (*Optional if restricted to day operations only)	AC91-13 section 4.3 and Operator's approved NVIS course	Annual competency check as per AC91-13 4.3.5 Ongoing currency as per AC91-13 4.3.4	AC91-13 includes specific flight time pre-requisites prior to commencing NVIS training.
Winch operations (*as applicable)	Operator's syllabus of winch training: Day (land) Night (land) Water winching Deck winching CAR 133.75 check required at completion of training.	Biennial competency check as per CAR 133.75 Annual winch training conducted with winch instructor. Ongoing currency as per operator's procedures.	CAR 133.75 requirement applies to every crew member. Operator's procedures to describe how competency for different types of winching is assured. As a minimum each type of winching to be demonstrated 12-monthly. (NOTE - 60 day grace period as per CAA rule)
Specific operations - IHT - Search (visual day / night, DF homing) (*as applicable)	Operator's syllabus of training.	Included in applicable flight crew competency assessment.	Operator's procedures to detail how individual items are included in flight crew competency assessments.

“Trained” means the operator's procedures include a syllabus of training for the specific skill set.

“Competent” means in accordance with the relevant CAR and the Operator's assessment procedures.

2.3 Fixed Wing – Minimum Pilot Competency

Outcome: **2.3** The pilot's experience shall be at a level necessary to safely operate a fixed wing aircraft within the potential range of environmental and metrological conditions likely to be experienced in an aeromedical or air search operation.

Criteria **2.3.1** The following requirements are considered to be the minimum pilot experience necessary to safely operate in each of the fixed wing aeromedical and air search and rescue categories.

Fixed Wing: Group 1

INTERNATIONAL

IFR 24/7 (Multi crew)

Multi-Engine - Pressurised

Multi Crew Command

First Officer

	Multi Crew Command	First Officer
Pilot Licence	Airline Transport Pilots Licence	Commercial Pilot's Licence
Total Flight Experience	2400hr (500 hours of which may be ICUS)	500 hours
Multi-engine (Total time)	500 hours	100 hours
Multi-engine instrument Rating	ME/IR Current	ME/IR Current
IFR Experience	500 hours	100 hours
Type Experience	Min. 25 hours on type (Crew pairing limitation 20 Cyc, 50hr)	Min. 25 hours on type (Crew pairing limitation 20 Cyc, 50hr)
Total Night	150 hours	50 hours
Air Transport Operators (ATOPS)	500 hours PIC (or ICUS*)	
X-Country	Minimum 500 hours Oceanic	150 hours PIC (or ICUS*)

NOTE: Existing Domestic Captains and International Flight Officers who have been in Multi-Crew Command for at least 12 months may be upgraded to Multi-Crew Command for international operations based on a risk and competency assessment, provided they meet all the requirements of multi-crew command for Domestic and have the following experience as a minimum - Airline Transport Pilots Licence, 500hr multi-engine, 500hr IFR, 150hr night, 500hr oceanic.

<u>Fixed Wing: Group 1</u>	Pilot in Command:
DOMESTIC	
IFR 24/7 (Multi crew)	Multi-Engine - Pressurised
IFR 24/7 (Single pilot)	Multi-Engine – Pressurised
Pilot Licence	Commercial Pilot’s Licence
Total Flight Experience	1500 hours flight time as Pilot in Command. Note 1: The operator shall have a documented policy and process to ensure that at least one member rostered on a multi crew operation has completed a minimum of 50 hrs operational consolidation flying time on the a/c type subsequent to all company training requirements (Up to 250 hours of helicopter pilot time may be credited towards the 1500 hour requirement)
Multi-engine experience	500 hours flight time.
M/E Instrument rating	Current in aircraft category.
Type rated on aircraft	100 hours on type (or min 25 hrs on type + 75 hrs on an aircraft of similar performance capability).
Instrument Flight Rules [IFR]	200 hours Flight time [on an IFR Flight Plan]
Night Experience	100 hours with night endorsement
Air Transport Operations (ATOs)	100 hours fixed wing air transport operations (maybe be ICUS*)
X-country	150 hours as Pilot in Command (maybe be ICUS*)

NOTE: *Pilot in Command Under Supervision (ICUS) means the performance by a co-pilot (or a pilot in a single pilot aircraft), of the duties of a pilot-in-command during flight under the supervision of a pilot in command designated for the purpose by the Operator.

Fixed Wing Group 1:
DOMESTIC

Co-Pilot/ First Officer:
Multi-Engine - Pressurised
IFR 24/7 operations (Multi/single pilot)

Pilot Licence	Commercial pilot's Licence
Total Flight Experience	500 hours total time
Instrument rating	Current
Type rated on aircraft	10 hours on type
Instrument Flight Rules [IFR]	50 hours Flight time [on an IFR Flight Plan]
Night Experience	10 hours with night endorsement

Group 1 Domestic (IFR/24 hr)	Multi crew Command	Multi crew Co-pilot/FO	Single crew
Licence	CPL	CPL	CPL
Flight experience	1000 hrs PiC (500 hrs may be ICUS*)	400 hrs	1500 hrs PiC
Multi engine (Total time)	500 hrs M/E or 500 hrs IFR, or 500 hrs ATO		500 hrs
Multi engine I/R.	M/E Instrument current	M/E Instrument current	M/E Instrument current
IFR	200 hrs	50 hrs	200 hrs
Type experience	100 hrs in a/c type (or synthetic training device) Min. 25 hrs on type	10 hrs	100 hrs on type Min. 25 hrs on type
Total Night - with night endorsement	50	10 hrs	100 hrs
Air Transport Ops	100 hrs PiC (or ICUS*)		100 hrs PiC (or ICUS*)
Total x/country	150 hrs PiC (or ICUS*)		150 hrs PiC (or ICUS*)

NOTE: Upgrades for pilots who have been operating with the same operator on the same type in an air ambulance capacity for 2yrs should have a reduced multi-time, IFR and ATO requirement of 350hr each for multi-crew command upgrades with a risk assessment and customised upgrade training program to be produced by the operator.

Fixed Wing: Group 2**DOMESTIC****Pilot Licence****Total Flight Experience****M/E Instrument rating****Type rated on aircraft****Instrument Flight Rules
[IFR]****X-country****Pilot in Command:****Multi-Engine Unpressurised****IFR 24/7 operations (single pilot)**

Commercial pilot's Licence

1500 hours total time as pilot

(Up to 500 hours of helicopter pilot time may be credited towards the 1500 hour requirement)

Current with Single Pilot privileges

100 hours on type (or min 25 hours on type + 75 hours on an aircraft of similar performance capability).

100 hours flown on an IFR Flight Plan

150 hours as Pilot in Command

Fixed Wing: Group 3**DOMESTIC****Pilot Licence****Total Flight Experience****Type rated on aircraft****Air Transport Operations
(ATOs)****Night Experience****X-country****Pilot in Command: Single Engine Turbine
Pressurised****IFR 24/7 operations (single pilot)**

Commercial pilot's Licence

1500 hours total time as pilot

(Up to 500/150 hours of helicopter pilot time may be credited towards the 1500 hour requirement)

100 hours on type

30 hours air transport operations as pilot (fixed wing)

50 hours night endorsement or instrument rating

500 hours as Pilot in Command

2.4 Exceptions to Recommended Pilot Experience and Competency

Outcome	2.4 Where an operator wishes to engage a pilot who does not meet the recommended experience, risk mitigations to ensure an equivalent level of safety shall be demonstrated.
Criteria	<p>2.4.1 In addition to the requirements outlined under 1.7 Temporary non-conformance with the Standard in the Administration section of this document, the service provider shall also have a documented risk-based progression pathway that acknowledges:</p> <p>2.4.1.1 Skill sets not meeting requirements. 2.4.1.2 Other technical or non-technical skills or experience that may offset or mitigate the shortfall in minimum requirements.</p>
Criteria	2.4.2 A description of the risk mitigations that will be implemented and maintained (or progressively reviewed) while the pilot remains below the minimum e.g. mentoring, ICUS, direct or indirect supervision, flight authorisation, specific operational or weather minima, routine reviews, debriefs, documented internal reports etc.
Criteria	<p>2.4.3 A system to ensure a pilot under this regime is not rostered with:</p> <p>2.4.3.1 Other inexperienced low time crews, or; 2.4.3.2 Other crewmembers operating under a similar regime permitted under this Standard.</p>
Criteria	2.4.4 A documented policy on the maximum number of pilots operating under this provision (Temporary non-conformance) at any one time.
Criteria	2.4.5 A requirement to report any incident or accident involving a pilot under this regime to the Standards Administrator.
Criteria	2.4.6 This documented process (Criteria 2.4.1) shall be made available to approved auditors on request.
NOTE:	A template is included as Appendix B

SECTION 3 CREWMEMBER ROLES

3.1 Crewmember General Requirements

- Outcome:** 3.1 The crewmember shall have the required, induction, training, experience, proficiency, recency and competency in their specific roles during day and during night operations (aided and unaided) to:
- assist the Pilot in Command in the safe operation of the aircraft;
 - ensure the safety and wellbeing of all passengers, clinical support crew and security of equipment;
 - operate the winch where applicable;
 - ensure the safety and security of landing sites and the safety of the public.
- Criteria** 3.1.1 Where the crewmember/secondary paramedic duties include any other than clinical support to the primary Paramedic, the Operator shall maintain a Crewmember Authorisation scheme that mirrors that of the pilots. The Operator shall maintain the associated training records to demonstrate that the crewmember is competent to perform their duties in accordance with the roles and responsibilities documented in the Operator's Exposition, Crew Training Manual, SOPs (or equivalent).
- Criteria** 3.1.2 Each crewmember shall meet the training requirements for their specific roles specified in **Table 4A, 4B and 4C Minimum Education and Training Requirements.**
- Criteria** 3.1.3 The service provider shall be able to demonstrate, via its SMS or Crewmember Authorisation Scheme, how gaps in proficiency, recency and competency will be identified and managed until a satisfactory level of aeromedical operations induction is completed.
- Criteria** 3.1.4 **Proficiency** - Proficiency in the required skill sets shall be documented in the operator's Crewmember Authorisation Scheme.
- The scheme shall indicate each skill set a crewmember is authorised to perform;

- Use of 'grading' e.g. A – D, including the descriptor for each, is an effective way to stipulate the level of authorisation or required controls in each instance;
- The operator shall have a process to update the form to properly reflect the crewmember's current authorisation status;
- The form shall be signed by both the person responsible for the categorisation and the crewmember and reflect the date of the most recent update.

NOTE: A template is included as Appendix D.

- Criteria** **3.1.5 Recency** - The operator shall have in place a system to identify and alert management when a crewmember's recency falls below the operators exposition requirement in regard to either hours/sectors/flight evolutions over any consecutive 90 day rolling period.
- The operator shall be able to demonstrate that appropriate risk mitigation was considered / engaged if appropriate in the event of each alert indicating hour recency.
- The operator should apply the same procedure for perishable skills sets other than accumulated either hours/sectors/flight evolutions e.g. night operations under NVG, Dry and Wet Winch evolutions rescue swimmer re-certification.
- Criteria** **3.1.6 Competency** - Crewmember shall have completed training and have been assessed as competent prior to being assigned to a task involving the applicable skill set in accordance with the crewmembers authorisation.
- Criteria** **3.1.7** The operator shall ensure it has a documented policy that clearly delineates the responsibilities and limitations of crewmembers occupying a front (cockpit) seat in the aircraft.
- Criteria** **3.1.8** The operator shall ensure that the responsibilities and limitations above include provision for appropriate initial and refresher training in the operation of any equipment a crewmember is permitted to operate or manipulate including use of on-board electronic documentation and checklists.
- Criteria** **3.1.9** Each crewmember shall participate in activities that maintain the skills and competencies for their specific roles required to operate as a Crewmember, as prescribed in the approved Expositions. Up-to-date records shall be maintained by the operator to demonstrate the acquisition and on-going maintenance of the required skills and experience.

- NOTE 1:** For the purposes of this document the term 'Crewmember' differs from that of the current definition for 'Crew member' in Civil Aviation Rule Part 1.
- NOTE 2:** Dependent on the service provision model, the secondary paramedic may be assigned by the operator to perform duties associated with the operation of the flight. Where this is the case, they may be classified as a crewmember or supplementary crewmember [CAR 133.73]
- NOTE 3:** Dependent on the service provision model, where a crewmember jointly operates as part of the clinical team, their duties and responsibilities in respect of clinical assistance shall be documented by the operator.

3.2 Winch Operator

- Outcome:** **3.2** The Winch Operator shall have the required induction, training, experience, proficiency, recency and competency to assist the Pilot in Command in the safe operation of the aircraft in flight whilst conducting winch operations during day and during night operations (aided and unaided).
- Criteria** **3.2.1** Winch Operators shall have satisfactorily completed a course of training that meets current accepted practice, and be certified by an approved person. Competency checks shall be completed at 12 month intervals and recorded.
- Note:** An approved person is an operator's check and training pilot or winch operator as designated within their approved Expositions.
- Criteria** **3.2.2** In addition to 3.2.1 all Winch Operators shall meet the minimum training requirements specified in **Table 4A – Rotary Minimum Education and Training Requirements** for aeromedical and air-SAR activities for rotary wing operations.
- Criteria** **3.2.3** Winch Operators shall participate in winching activities that maintain the skills and competencies required to operate competently as a Winch Operator, as prescribed in the approved Expositions. Up-to-date training records shall be maintained by the operator to demonstrate the on-going maintenance and acquisition of required skills and experience.
- NOTE:** An example of the winch-skills and down-the line refresher requirements has been provided in Appendices E & F.

3.3 Rescue Swimmer

Outcome **3.3** The rescue swimmer shall have the required experience, training, currency, and competency to safely effect the rescue of persons from within an aquatic environment.

Criteria **3.3.1** Rescue swimmers shall meet, and continue to meet, the required standards of a recognised and relevant organisation or association (e.g., the European Rescue Swimmers Association Standards) or equivalent (e.g., swift water rescue or SLSNZ Surf Life Guard qualification).

Criteria **3.3.2** In addition to 3.3.1, rescue swimmers shall meet the minimum training requirements specified in Table 4. – Crew Minimum education and training requirements for aeromedical / air SAR activities for rotary wing operations.

Criteria **3.3.3** Rescue swimmers shall participate in regular training and activities that maintain the skills, competencies, and experience required to safely and competently perform rescue operations in the aquatic environment in which they operate. In addition, the service provider shall provide up-to-date training records to demonstrate ongoing maintenance and acquisition of these requirements.

NOTE 1: Definition

In the context of this Standard, a rescue swimmer is defined as a helicopter specialist crewmember designated to effect the rescue of persons within an aquatic environment.

NOTE 2: Rescue Swimmer Deployment

With the information provided, when tasked with a mission in an aquatic environment, crews shall conduct a risk assessment before responding to ascertain the nature of the mission and whether a rescue swimmer is required.

3.4 Clinical Crew (Clinical practitioners)

Outcome: **3.4** Organisations providing a helicopter aeromedical or air SAR capability shall operate with a clinical crew as specified in NZS8156 and who are competent in aeromedical transportation.

Criteria: **3.4.1** Clinical Crew shall receive training for the aeromedical environment in which they operate and in line with minimum training requirements for their specific roles specified in current version of NZS 8156, and **Table 4B and 4C – Crew Minimum Education and Training Requirements** (as applicable).

3.5 Medical Passengers

Outcome: **3.5** The operator shall ensure that when carrying Medical Passengers' (doctors, nurses, midwives, paramedics and other health professionals who infrequently fulfil an aeromedical role) their safety is maintained during the transport of patients in the aviation environment.

Criteria **3.5.1** All Medical Passengers shall meet the minimum training requirements for their respective roles specified in **Table 4B and 4C – Crew Minimum Education and Training Requirements** (as applicable).

3.6 Load Master (Fixed wing)

Outcome: **3.6** The fixed-wing Load Master/crewperson shall have the required induction, training, experience, proficiency and recency to assist the Pilot in Command and medical team in the safe preparation of the aircraft and equipment on the ground and the safe loading and unloading of patients during transport and in the clinical setting.

Criteria **3.6.1** The fixed-wing Load Master/crewperson shall have satisfactorily completed a course of training that meets current accepted practice and be authorised. Competency checks shall be completed at 12-month intervals and recorded.

3.6.1.1 The fixed-wing Load Master/crewperson shall have attained level 2 first aid or above.

3.6.1.2 The fixed-wing Load Master/crewperson shall have been instructed in the use of common road ambulance stretchers and the certified interface (clipdeck etc) to ensure secure transport for road sectors.

3.6.1.3 If the fixed-wing Load Master/crewperson is to be assigned operations of a specialist nature i.e.: PICU/NICU/ECMO they must have received training on the specialist equipment/Rig.

Criteria **3.6.2** In addition to 3.6.1, the fixed-wing Load Master/crewperson shall meet the minimum training requirements for Crewmembers as specified in Table 4A and 4B – Minimum education and training requirements (as appropriate to their role)

Criteria **3.6.3** Up-to-date training records shall be maintained by the operator to demonstrate the ongoing maintenance and acquisition of required skills and experience.

TABLE 1 ROTARY AIRCRAFT PERFORMANCE CAPABILITY

For the benefit of this Standard, aircraft have been grouped in the following manner:

Rotary aircraft	Flight capability	Powerplant	NVIS capability	Traffic Alerting System or TCAS	Ground proximity warning system and EGPWS	Sat. flight tracking	Radar altimeter	Artificial Horizon
Group 1 Aeromedical and SAR	IFR/VFR	Multi-engine Turbine	Yes	Yes ADSB In/Out or other equivalent TAS i.e. TCAS	TAWSB or HTAWS + moving map	Yes TSO 146 Recommended	Yes Audio and visual	A/H plus standby
Group 2 Aeromedical and SAR	VFR	Multi-engine turbine	Yes	Yes ADSB In/Out or other equivalent TAS i.e. TCAS	Moving map with terrain warning	Yes	Yes Audio and visual	A/H plus standby

TABLE 2 FIXED WING AIRCRAFT PERFORMANCE CAPABILITY

Fixed wing aircraft	Flight capability	Powerplant	Cabin	Traffic Alerting system or TCAS	Ground proximity warning system and EGPWS	Sat. flight tracking	Radar altimeter	Standby Artificial horizon
Group 1 International	IFR	Multi engine	Pressurised	YES	TAWS	YES	Yes Audio and visual	YES
Group 1 Domestic Aeromedical and Search	IFR	Multi engine	Pressurised	YES	TAWS	YES	Yes Audio and visual	YES
Group 2 Domestic Aeromedical and Search	IFR	Multi engine	Non-pressurised	YES	TAWS	YES	YES Audio and visual	YES
Group 3 Domestic Aeromedical and Search	IFR	Single engine turbine	Pressurised	YES	TAWS	YES	YES Audio and visual	YES

NOTES:

Automatic Dependent Surveillance–Broadcast (ADS-B) is an aircraft surveillance system. Aircraft receive accurate and precise location data from a satellite constellation and then broadcast this information through a transponder. This data can then be used by air traffic management services to maintain aircraft separation.

Traffic alert & Collision Avoidance System (TCAS) is a system that warns pilots of the presence of other aircraft in the proximity which may pose a threat and gives instructions to avoid mid-air collision.

Terrain Avoidance and Warning System (TAWS), Ground Proximity Warning System (GPWS), Enhanced Ground Proximity Warning System (EGPWS) are systems that provide the pilot with sufficient information and alerting to detect a potentially hazardous terrain situation and so the pilot may take effective action to prevent a CFIT event.

Helicopter Terrain Awareness and Warning System (HTAWS) is a system that computes the precise three-dimensional position and velocity of the aircraft i.e., real-time monitoring in relation to accurate databases of the terrain height and hazardous-obstacle locations.

TSO-C146 - Stand-Alone Airborne Navigation Equipment Using the Global Positioning System Augmented by the Wide Area Augmentation System.

TABLE 3A ROTARY AIRCRAFT – MINIMUM EQUIPMENT REQUIREMENTS

Rotary Aircraft	Survival gear (suitable for the environment)	Ambient temperature/climate control	Communications to tasking authority	Communications (inter crew)	Communications- (satellite phone)	Stretchers	Medical securing system or rack	Overhead hooks	Lighting task/patient	Oxygen supply	Direction finding/homing (406 Mhz)	Direction finding/homing (121.5 Mhz)	Protective clothing (helmets and clothing/footwear suitable for task)	Winch capability	Cockpit video/audio recording devices
Group 1	Yes	Yes	Yes	Yes	Yes for Sarops	Yes	Yes	Yes	Yes	Yes	Desirable For Sarops	Desirable For Sarops	Yes	Yes	Desirable
Group 2	Yes	Yes	Yes	Yes	Yes for Sarops	Yes	Yes	Yes	Yes	Yes	Desirable For Sarops	Desirable For Sarops	Yes	yes	Desirable

TABLE 3B FIXED WING AIRCRAFT – MINIMUM EQUIPMENT REQUIREMENTS

Fixed wing aircraft	Survival gear (adequate and appropriate)	Ambient temperature/climate control	Communications to tasking authority	Communications (inter crew)	Communications- (satellite phone)	Stretchers	Medical securing system or rack	Overhead hooks	Certified to fly in icing conditions	Weather Radar	Lighting task/patient	Oxygen supply	Direction finding/homing (406 Mhz)	Direction finding/homing (121.5 Mhz)	Protective clothing (Adequate and appropriate for task)
Group 1	Yes	Yes	Yes for search ops	Yes	Yes for Search ops	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Desirable For Search	Desirable For Sarops	Yes
Group 2	Yes	Yes	Yes for Search ops	Yes	Yes for Search ops	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Desirable For Search	Desirable For Sarops	Yes
Group 3	Yes	Yes	Yes for Search ops	Yes	Yes for Search ops	Yes	Yes	Yes	No	No	Yes	Yes	Desirable For Sarops	Desirable For Sarops	Yes

TABLE 4A ROTARY AIRCRAFT – MINIMUM EDUCATION AND TRAINING REQUIREMENTS

FOR CLINICAL AND MEDICAL PASSENGER TRAINING REQUIREMENTS REFER TABLE 4C

IN THE ABSENCE OF DEFINITIVE TRAINING IN SOME INDIVIDUAL SKILL SETS THE [AV] REFERENCES IN THE CREWMEMBER COLUMN PROVIDE RECOMMENDED REFERENCE MATERIAL FROM THE JOINT AUSTRALIAN DEFENCE FORCE/CIVIL AVIATION SAFETY AUTHORITY AIR CREW OFFICER QUALIFICATION SYLLABI.

ROTARY AIRCRAFT OPERATIONS		REFERENCE OR STANDARD	PILOT IN COMMAND/ CO PILOT (where required)	CREW MEMBER (where utilized)	SPECIALIST CREW MEMBER (e.g. RESCUE SWIMMER)
1	Standard Operating Procedures (SOPs)	Company Document Suite (SOPs)	Yes	Yes	Yes
2	Specific aircraft orientation – type and mission role equipment	Company Document Suite Training Manual	Yes	Yes Aviw0025	Yes
3	Normal, abnormal and emergency in-flight procedures	Company Document Suite Training Manual/ AFM	Yes	Yes AVFF0042	Yes
4	Safety in and around aircraft	Company Document Suite	Yes	Yes AVFF0023 AVFF0041	Yes
5	Dangerous Goods (incl. awareness training li-ion batteries)	Recognised CAA approved 3 rd . Party, or CAA approved 'In-house' course	Yes	Yes	Yes
6	Human Factors/CRM Threat & Error Mgmt.	IAW sect. 4 of this standard	Yes	Yes AVIF0035	Yes
7	Physiological effects of altitude	As appropriate	Yes	Yes	Yes
8	Fatigue management	Per Company FRMS	Yes	Yes	Yes
9	Survival training	As appropriate	Yes	Yes	Yes
10	HUET (if conducting regular flights overwater)	Commercial 3 rd . Party or 'In-house' dunk simulator	Yes	Yes	Yes
11	Day and night flying protocols	Company Document Suite	Yes	Yes	Yes
12	EMS and general communications	Company document suite	Yes	Yes	Yes
13	Aircraft evacuation procedures	Company document suite	Yes	Yes	Yes

ROTARY AIRCRAFT OPERATIONS		REFERENCE OR STANDARD	PILOT IN COMMAND/ CO PILOT (where required)	CREW MEMBER (where utilized)	SPECIALIST CREW MEMBER (e.g. RESCUE SWIMMER)
14	In-flight and ground fire suppression	Company Document Suite	Yes	Yes	N/A
15	NVG cabin protocols (night ops)	Aircraft flight manual (NVIS supp)	Yes	Yes	Yes
16	Emergency landing procedures	Company Document Suite	Yes	Yes	Yes
17	Management of oxygen supplies	Company Document Suite /Pilot Maintenance Authority	Yes	Yes	N/A
18	Use of emergency locator beacons	Company Document Suite	Yes	Yes	Yes
19	Patient loading and unloading	Company Document Suite	Yes	Yes	N/A
20	Refueling procedures with patient on board	Company Document Suite / CAR 135.73	Yes	Yes AVIF0035 AVIW3006	N/A
21	Aviation terminology	Company Document Suite	Yes	Yes	Yes
22	SAR visual search techniques (if conducting SAROPs)	Company Document Suite or recognized SAR observer training	Yes	Yes	Yes If appropriate
23	Direction controlled light protocols	Company document suite [NVIS]	Yes	Yes	N/A
24	Flight following	Company document suite	Yes	Yes	N/A
25	Education & use of PPE	As appropriate	Yes	Yes	Yes
26	Human sling loads, strops, harnesses & winching	Company document training suite	Yes	Yes AVIY0066 AVIY0065	Yes If appropriate
27	Flight Simulator Emergency Training & Line Oriented Flight Training (LOFT)	CAA approved flight training device	Yes Annual	Yes	N/A

TABLE 4B ROTARY AIRCRAFT – CLINICAL CREW AND MEDICAL PASSANGER MINIMUM EDUCATION AND TRAINING REQUIREMENTS

ROTARY AIRCRAFT OPERATIONS		Reference or Standard	Clinical crew (Frequent crew member)	Medical passenger (infrequent crew member)
1	Standard Operating Procedures (SOPs)	Company Document suite (SOPs)	Yes	N/A
2	Specific aircraft orientation	Company Document suite Training Manual	Yes	Pre flight briefing
3	In-flight procedures	Company Document suite Training Manual/ Flight Manual	Yes	Pre flight briefing
4	Role specific equipment orientation	Company Document suite	Yes	Yes
5	Safety in and around aircraft	Company Document suite	Yes	Pre flight briefing
6	Safety awareness training Li-Ion Batteries	Recognised course or 'in-house'	Yes	Pre flight briefing
7	Human factors / CRM Threat & error mgmt.	Recognised course or 'in-house'	Yes	N/A
8	Physiological effects of altitude	As appropriate	Yes	Pre flight briefing
9	Stressors of flight incl. fatigue management	As appropriate	Yes	N/A
10	Survival training	As appropriate	Yes	N/A
11	HUET (if conducting regular flights overwater)	Commercial or 'in-house' dunk simulator	Yes	Pre flight briefing
12	Day and night flying protocols	Company Document suite	Yes	N/A
13	EMS, Air Desk and on-board communications incl. Sterile cockpit	Company Document suite	Yes	N/A
14	Aircraft evacuation procedures	Company Document suite	Yes	Pre flight briefing
15	In-flight and ground fire suppression	Company Document suite	Yes	N/A
16	In-flight emergency procedures	Aircraft Flight Manual	Yes	Pre flight briefing
17	NVG cabin protocols (Night ops)	Aircraft Flight Manual (NVIS Supp)	Yes	Pre flight briefing
18	Emergency landing procedures	Company Document suite	Yes	Pre-flight briefing
19	Training/familiarisation on use of all onboard clinical equipment and retrieval packs/supplies	Company Document suite Demonstrated Competency	Yes	N/A

ROTARY AIRCRAFT OPERATIONS		Reference or Standard	Clinical crew (Frequent crew member)	Medical passenger (infrequent crew member)
20	Use of emergency locator beacons	Company Document suite	Yes	Pre flight briefing
21	Patient packaging, loading and unloading	Company Document suite	Yes	N/A
22	Refueling procedures with patient on board	Company Document suite / CAR 135.73	Yes	Pre-flight briefing
23	Hazardous materials recognition	Company Document suite /Training, Approved DG training course	Yes	Pre flight briefing
24	Aviation terminology	Company Document suite	Yes	N/A
25	SAR visual search techniques (if conducting SAR ops)	Company Document suite or recognized SAR Observer Training	Yes	N/A
26	Flight following	Company Document suite	Yes	N/A
27	Education & use of PPE/Uniforms	As appropriate	Yes	Yes
28	Human sling loads, strops, harnesses & winching	Company Document training suite	Yes	N/A
29	patient documentation and clinical handover	Identify Situation Background Assessment Requirements (ISBAR) format (or similar system agreed)	Yes	Yes
30	Post mission procedures		Yes	N/A
31	Safety & quality governance		Yes	Yes

TABLE 4C FIXED WING AIRCRAFT - MINIMUM EDUCATION AND TRAINING REQUIREMENTS

Fixed wing aircraft operations		Reference or Standard	Pilot in command	Co-pilot (where req.)	Crew Member (Where utilised)	Clinical crew (Frequent crew member)	Medical passenger (infrequent crew member)
1	Standard operating procedures (SOPs)	Company Document suite (SOPs)	Yes	Yes	Yes	Yes	N/A
2	Specific aircraft orientation	Company Document suite Training Manual	Yes	Yes	Yes	Yes	Pre-flight briefing
3	In-flight procedures	Company Document suite Training Manual/ AFM	Yes	Yes	Yes	Yes	Pre-flight briefing
4	Role specific equipment orientation	Company Document suite. Pilot Maintenance Authority	Yes	Yes	Yes	Yes	Yes
5	Safety in and around aircraft	Company Document suite	Yes	Yes	Yes	Yes	Pre-flight briefing
6	Safety awareness training Li-Ion Batteries	Recognised course or 'in-house'	Yes	Yes	Yes	Yes	Pre-flight briefing
7	Human factors /CRM/ Threat & error Mgmt.	IAW Chapter 4	Yes	Yes	Yes	Yes	Pre-flight briefing
8	Physiological effects of altitude	Company Document suite Training Manual	Yes	Yes	Yes	Yes	Pre-flight briefing
9	Stressors of flight incl. management of fatigue	Company Document suite Training Manual	Yes	Yes	Yes	Yes	N/A
10	Survival training	Company Document suite Training Manual	Yes	Yes	Yes	Yes	N/A
11	Day and night flying protocols	Company Document suite	Yes	Yes	Yes	Yes	N/A
12	EMS and general communications	Company Document suite	Yes	Yes	Yes	Yes	N/A
13	Aircraft evacuation procedures	Company Document suite	Yes	Yes	Yes	Yes	Pre-flight briefing
14	In-flight and ground fire suppression	Company Document suite	Yes	Yes	Yes	Yes	N/A
15	In-flight emergency procedures	Aircraft Flight Manual	Yes	Yes	Yes	Yes	Pre-flight briefing

Fixed wing aircraft operations		Reference or Standard	Pilot in Command	Co-pilot (where req.)	Crew Member	Clinical crew (Frequent crew member)	Medical passenger (infrequent crew member)
16	Emergency landing procedures (Day/night)	Company Document suite	Yes	Yes	Yes	Yes	N/A
17	Management of oxygen supplies	Company Document suite Pilot Maintenance Authority	Yes	Yes	Yes	Yes	N/A
18	Use of emergency locator beacons	Company Document suite	Yes	Yes	Yes	Yes	Pre-flight briefing
19	Patient loading and unloading	Company Document suite	Yes	Yes	Yes	Yes	N/A
20	Refueling procedures with patient on board	Company Document suite / CAR 135.73 /CAR P125.73	Yes	Yes	Yes	Yes	Pre-flight briefing
21	Hazardous materials recognition	Company document suite / Training Recognized DG training	Yes	Yes	Yes	Yes	N/A
22	Aviation terminology	Company Document suite	Yes	Yes	Yes	Yes	N/A
23	Visual search techniques	Company Document suite Training Manual	Yes	Yes	Yes	Yes	N/A
24	Flight following	Company Document suite	Yes	Yes	Yes	Yes	N/A
25	Education & use of PPE	As appropriate	Yes	Yes	Yes	Yes	Yes

SECTION 4 RISK MANAGEMENT

4.1 Human Factors and Crew Resource Management (CRM)

Outcome: 4.1 Pilots and crewmembers shall operate within a CRM Programme that ensures professional and proficient crew communication and participation, in order to maximise safe flying and operational practices.

Criteria 4.1.1 The operator shall ensure an operating environment where pilots and crewmembers participate in a well-planned and implemented Crew Resource Management (CRM) programme that all operational staff are trained in and are familiar with. This programme shall accommodate the usual pilot and non-pilot/ crew combinations to ensure the following:

- 4.1.1.1 Effective skills among all team members
- 4.1.1.2 Integrating checklists and error traps into everyday practice
- 4.1.1.3 Recognising and minimising the risk of threats and errors
- 4.1.1.4 Promoting a culture that promotes professionalism
- 4.1.1.5 Improving employee performance and staff retention
- 4.1.1.6 Making facilities and operations safer and more efficient.

Criteria 4.1.2 Crew Resource Management training should include but is not limited to:

- 4.1.2.1 Human error and reliability, error chain, error prevention and detection
- 4.1.2.2 Company safety culture, SOPs, organisational factors
- 4.1.2.3 Stress, stress management, fatigue and vigilance
- 4.1.2.4 Information acquisition and processing, situation awareness
- 4.1.2.5 Workload management
- 4.1.2.6 Decision making
- 4.1.2.7 Communication and co-ordination inside and outside the cockpit
- 4.1.2.8 Leadership and team behaviour synergy.

Criteria 4.1.3 Crew Resource Management training shall be a formal process.

4.1.3.1 Initial CRM training shall be face to face training and shall include at least the elements outlined in 4.1.2 above.

- 4.1.3.2 Successful attendance at such training shall be demonstrated by a Certificate of Attendance or Certificate of Achievement.
- 4.1.3.3 Refresher training shall be carried at intervals not exceeding 12 months.
- 4.1.3.4 Successful completion of refresher training shall be demonstrated by a certificate or training record completion and held on the individuals training file.
- 4.1.3.5 Pilots and crewmembers should complete a full Human factors/CRM training course every 3 years.

4.2 Safety Management Systems [SMS]

Outcome: 4.2 Pilots and crewmembers shall operate within a risk management system that maximises aviation safety.

Criteria 4.2.1 The operator shall be able to demonstrate an operating and effective safety management system.

Criteria 4.2.2 The operator shall be able to demonstrate formal induction and ongoing awareness training of safety management to all pilots and crewmembers that promotes and supports a 'reporting culture'.

4.3 Fatigue Risk Management Systems

Outcome: 4.3. The operator shall have an implemented Fatigue Risk Management Scheme (FRMS) accepted by CAA and reflected in s. 16 of the operator's Ops Specs.

Criteria: 4.3.1 The operator shall have, and enforce, a Fatigue Management Policy to ensure personnel in the operations and maintenance of aircraft do not carry out their duties while fatigued.

Criteria 4.3.2 The pilot in command shall be responsible for ensuring crew complete routine assessments in line with IMSAFE principles and that:

- 4.3.2.1 A flight will not be commenced by a crewmember with reduced capacity in performing duties by any cause such as injury, sickness, or fatigue
- 4.3.2.2 A flight will not be continued beyond the nearest suitable aerodrome when a crewmember's capacity to perform functions is significantly reduced by impairment of faculties such as fatigue or sickness.

SECTION 5 AEROMEDICAL (INTER-HOSPITAL and INTER-FACILITY TRANSFER) OPERATIONS

5.1 Availability for Tasking

Outcome: 5.1 The aeromedical aircraft shall be available for tasking as agreed with the tasking agency or contracting authority.

Criteria 5.1.1 Appropriate personnel are available to crew and operate the aeromedical aircraft in accordance with Section 2 and 3 of this Standard.

Criteria 5.1.2 Pilots and crewmembers have access to weather reports for both the route, destination of mission and alternate landing sites. Where practicable, low level route structures and approach should be pre-determined and documented.

5.2 Preparedness and Activation

Outcome: 5.2 The aeromedical aircraft shall meet the preparedness and activation requirements as agreed with the tasking agency or contracting authority.

Criteria 5.2.1 Response times to any request for a patient transfer tasking will be mediated by operators' respective contracts, appropriate to the needs of the patient but never to the detriment of flight safety.

5.2.1.1 All operators shall respond to requests for dispatch in a timely manner with due consideration for all safety planning and preparation necessary to ensure a safe response.

5.2.1.2 Following a request to dispatch, aeromedical assets shall inform the tasking authority of the anticipated time to get airborne in light of the requirement above.

Criteria 5.2.2 Where a tasking has been turned down by an initial operator, the secondary operator shall have in place a requirement for their tasked pilot to make every effort to contact the pilot who has declined the mission to ascertain the reason for declining.

NOTE: Tasking authorities shall have procedures in place to inform the operator/pilot that an alternate provider has refused to respond to the mission and the reason for that refusal.

NOTE: Coordinating/Tasking Authority – For IHT and Primary/pre-Hospital tasking, this service should be a central, independent function that has a dedicated aeromedical-trained physician (full-time during the day and on-call at night, as a minimum) involved in clinical decision-making, and to support service quality and accountability.

5.3 Clinical Crew Combinations [Clinical team]

Outcome: 5.3 The aeromedical service or the responsible health service provides the appropriate clinical crewing capability, and any specialist skills necessary to transport the patient safely in line with nationally agreed guidelines for patient transport.

Criteria 5.3.1 Crew combinations shall comply with the requirements specified in **NZS 8156**.

5.4 Equipment

Outcome: 5.4 The aeromedical aircraft provides the appropriate equipment as well as any specialist requirements necessary to transport the patient safely.

Criteria 5.4.1 The requirements of each specific mission shall be based on the clinical needs of the patient, and this shall determine the selection of aeromedical assets, general and specialist medical equipment and recovery equipment in accordance with Table 3A/3B.

Criteria 5.4.2 Minimum clinical equipment requirements as specified in **NZS 8156** shall be met.

Criteria 5.4.3 Medical equipment, stretchers, and associated restraint systems shall meet the required CAA Standards and be maintained in compliance with the manufacturer's specifications. All modifications attached to the aircraft shall be approved as required by CAA Rules and fit for purpose. (refer to CAR 91.7 Portable Electronic Devices).

Criteria 5.4.4 Clinical Crew shall have full access to the patient, including the patients' head for advanced airway management.

Criteria 5.4.5 Oxygen supplies shall be maintained to assure an adequate supply is available for the tasking and unforeseen diversions.

Criteria 5.4.6 Equipment power supplies shall ensure an uninterrupted supply at the appropriate voltage. Due to the increase in portable electronic devices utilised in aeromedical missions an electrical load analysis (ELA) should be conducted when additional equipment is introduced.

Criteria 5.4.7 The operator shall be able to demonstrate induction and ongoing awareness training for hazards associated with the carriage, use and charging of Lithium Ion (Li-ion) batteries on board aircraft, in particular the hazards arising from damaged batteries and the management of battery fires.

SECTION 6 SEARCH AND RESCUE OPERATIONS

6.1 Availability for Tasking

Outcome: 6.1 The response aircraft is available for tasking as specified in funder agreements.

Criteria 6.1.1 Air ambulance service providers when providing SAR capability to the SAR Coordinating Authorities in accordance with the procedures of the New Zealand Search and Rescue Emergency Ambulance Services Agreement (The Relationship Agreement) shall do so in accordance with this section.

Criteria 6.1.2 Specialist role equipment necessary to ensure the required SAR capability is fitted or available to be fitted to the aircraft.

NOTE: All modifications attached to the aircraft shall be certified as required by Civil Aviation Rules or maintained in accordance with the manufacturer's specifications or company maintenance program.

Criteria 6.1.3 Appropriate trained and experienced personnel are available to crew and operate the aircraft for the SAR tasking in accordance with the relevant sections of this Standard:

- Section 2 Pilots
- Section 3 Crewmembers, and
- 5.3 Clinical crew.

6.2 Preparedness and Activation

Outcome: 6.2 The response aircraft will meet the preparedness requirements as agreed in formal contracts or Service Level Agreements concluded with the tasking agency or coordinating authority e.g. Relationship Agreement sect. 2 Air Ambulance Helicopter Tasking (agreed process).

Criteria 6.2.1 The response aircraft are to respond to requests for dispatch in a timely manner with due consideration for all safety planning and preparation necessary to ensure a safe response. Following a request to dispatch, the response aircraft shall inform the tasking authority of the anticipated time to get airborne in light of the requirement above.

Criteria 6.2.2 SAR Coordinating Authorities shall have procedures in place to inform the operator/pilot that an alternate provider has refused to respond to the mission and the reason for that refusal. The operator shall have in place a requirement for the tasked pilot to make every effort to contact the pilot who has declined the mission to ascertain the reason for declining.

6.3 Crew Combinations

- Outcome:** **6.3** The response aircraft crewing provides the appropriate capabilities for the SAR tasking.
- Criteria** **6.3.1** For a SAR tasking that is expected to involve a search element and a rescue element the following criteria should be met:
- 6.3.1.1 Safe and effective support of the operation of the aircraft in the prevailing and forecast conditions
 - 6.3.1.2 Safe and effective operation of the search equipment deployed on the aircraft
 - 6.3.1.3 Safe and effective operation of the human deployment and recovery system(s) fitted to the aircraft
 - 6.3.1.4 Safe and effective aerial search capability
 - 6.3.1.5 Appropriate clinical support for person(s) in distress
 - 6.3.1.6 Safe and effective operation and survival if deployed from the aircraft, given the prevailing and forecast environmental conditions in the operating area.
- Criteria** **6.3.2** For a SAR tasking that is expected to involve only a search element the following criteria should be met:
- 6.3.2.1 Safe and effective support of the operation of the aircraft in the prevailing and forecast conditions
 - 6.3.2.3 Safe and effective aerial search capability.

6.4 Equipment

- Outcome:** **6.4** The response aircraft provides the appropriate equipment when the patient's status is known and any specialised requirements necessary to retrieve the patient safely or to meet the requirements of the SAR tasking.
- Criteria** **6.4.1** Where known, the equipment requirements of each specific mission shall be based on the clinical needs of the patient or SAR mission, and this shall determine the selection of SAR response aircraft by the Coordinating Authority. General and specialised recovery equipment should be provided in accordance with Table 3A/B.
- Criteria** **6.4.2** Rescue equipment, search equipment, and recovery systems shall meet the required CAA Standard and be maintained in compliance with the manufacturer's specifications. All modifications attached to the aircraft shall be approved as required by CAA rules.
- NOTE:** **Section 6** is intended to complement the New Zealand Search and Rescue Aviation Standard being drafted at the time of writing.

SECTION 7 CAPABILITY REQUIREMENTS FOR SPECIALIST OPERATIONS

7.1 Rotary Night Operations – aided and unaided

Outcome:	7.1 All rotary night aeromedical and search and rescue operations are conducted in a safe manner, minimising the risks associated with night flights to patients and crew.
Criteria	<p>7.1.1 All rotary night VFR aeromedical and search and rescue operations should be planned to be conducted utilising approved Night Vision Imaging Systems (NVIS).</p> <p>7.1.1.1 In accordance with CAA Advisory Circular AC 91-13 (or subsequent) and DSP 83 for United States (US) purchased night vision goggles (NVGs).</p> <p>7.1.1.2 A documented (or otherwise recorded) NVIS Risk Assessment shall be completed as part of the planning for any NVIS flight.</p>
Criteria	7.1.2 The operator shall have in place a process to ensure the Pilot in Command has undergone on-the-job line and route training to allow them to be familiar or have been briefed on the departure, en-route and approach to all intended landing areas in their area of operation, including unprepared landing areas.
NOTE:	A properly administered Pilot Authorisation Scheme would meet this requirement
Criteria	<p>7.1.3 Where a Crew member is being utilized to assist the pilot in command in a single pilot operation at night, the Crewmember shall be trained to assist the pilot in the use of radios, GPS and other navigation equipment.</p> <p>7.1.3.1 The training shall meet the requirements stated in Table 4A</p> <p>7.1.3.2 The Crewmembers should have access to the equipment they are trained to use.</p>
Criteria	7.1.4 All pilots undertaking VFR night flying operations shall maintain a minimum visibility and height above ground as determined by the operator's NVIS SOPs or individual pilot authorisation limitations/condition but shall be no less than CAA VFR MET minima for night VFR and be in sight of the surface. To remain compliant with the above, a visible horizon should be maintained at all times.
NOTE:	An operator may conduct night VFR flights using NVIS to lesser minimums where the operator holds approval in writing from CAA for specific minimums (including any conditions or limitations) on individually identified routes.

- Criteria** **7.1.5** As part of the safety management system for the operation of an aircraft, a documented (or otherwise recorded) risk assessment shall be done prior to any NVG flight. This could be conducted in anticipation of any night operations, and if necessary, updated immediately prior to a flight.
- Criteria** **7.1.6** The aircraft shall comply with the minimum equipment requirements specified in **Table 3** if conducting operations at night. In addition to **Table 3** the aircraft shall have at least one of the following:
- 7.1.6.1 Autopilot – capable of holding attitude and heading; or
- 7.1.6.2 A crew of two pilots; or
- 7.1.6.3 For VFR ops - One pilot on night vision goggles to lit heliports or, one pilot and co-pilot and/or a crewman on night vision goggles to unlit helipads or remote locations. Crewing as per AC 91-13
- Criteria** **7.1.7** The operator shall have documented procedures for operations to and from night landing areas that are reflective of current accepted best practice that ensure the safe conduct of approaches and departures from lit and unlit landing areas.
- Criteria** **7.1.8** For VFR operations the operator shall have in place procedures supplemented with training to ensure the safe recovery to VFR from flight into Inadvertent Instrument Metrological Conditions (IIMC). The procedure shall include a requirement for pilots to maintain a minimum level of instrument proficiency.

7.2 External Load Operations (Ref Civil Aviation Rule Part 133)

Outcome: **7.2** The operator conducts safe external load operations.

Criteria **7.2.1** All equipment shall meet CAA requirements and AS/NZ 1891.1 for testing/checking and time-expiry criteria as applicable.

Criteria **7.2.2** Winch - All pilots, crewmembers and rescue personnel who conduct winch operations shall complete a training course comprising of equipment familiarisation, normal and emergency operations.

Criteria **7.2.8** A rescue cinch commonly referred to as a 'horse collar' **that is not fitted with a crutch-strap** should not be used over land except in exceptional circumstances in line with current accepted best practice.

7.3 Inshore/Off Shore Operations

Outcome: **7.3** The operator conducts safe overwater operations.

Criteria **7.3.1** Personal Flotation Devices (PFDs) shall be worn by all on board when the flight is beyond auto-rotational recovery to shore on all helicopter flights.

Criteria **7.3.2** Where procedural requirements result in a helicopter flying over water for a transient period and the predominant purpose of the flight is not an overwater operation, the operator may alternatively conduct a documented risk assessment of such operations to determine to what degree the overall safety of the persons on board will be enhanced by the wearing of PFDs. This risk assessment shall form the basis of a documented company policy of the wearing of PFDs in such circumstances. Such risk assessment shall consider (but not be limited to) the following:

- Likelihood of exposure to an emergency while over water
- Period of exposure [flight time over water e.g. hovering]
- Ambient water temperature
- Distance required to be flown beyond shore
- Physical capability of persons on-board to withstand ditching / egress and water survival, unaided
- Physical capability of persons on-board to render assistance to a patient, unaided
- Availability of rescue/recovery and projected response time.

Criteria **7.3.3** Beyond 10 nautical miles from shore - all aeromedical aircraft must carry life rafts sufficient to accommodate all occupants as per CAA requirements.

NOTE: Life rafts shall be equipped to CAR 91.525 (b).

Criteria **7.3.4** Fixed wing operations over water are conducted as per CAA requirements

NOTE: With respect to survival gear and personal protective clothing (PPE) in recognizing the diversity of operating environments across both helicopter and fixed wing services the Standard cannot be prescriptive. Operators are expected to conduct an analysis of the potential range of environment(s) in which their crews are likely

to be operating. The safety and survival equipment provided is to ensure adequate and appropriate protection against the adverse effects of these environments and shall include consideration given to post crash protection and survival e.g. helmets, personal flotation devices, Immersion suits, fire resistant uniforms, sturdy footwear, etc. in line with the operators SMS and HSM Systems.

Criteria	7.3.5 Offshore Support (also referred to as Top Cover or Overwatch SAR) is the provision of another aircraft to support a SAR mission is discretionary. The option to do so must be discussed between the Coordinating Authority and the provider of the asset and the decision of whether or not to provide a support service must be mutual and at a level appropriate to manage the mission risks.
NOTE 1:	The term “Offshore Support” is defined as a second aircraft tasked to provide any of the three levels of support – Communications Relay, SAR Support, or Rescue Support (described below).
NOTE 2:	Communications Relay: The provision of an aircraft that will operate at a medium altitude (up to 10,000 feet AMSL if non-pressurised, higher if pressurised) to deliver a communications relay service for tasked aircraft that may have difficulty with communications when operating at lower altitudes. This option would typically be considered for low altitude missions in mountainous terrain or offshore.
NOTE 3:	SAR Support: The provision of a second aircraft, to accompany the primary tasked aircraft, which has the capability of delivering survival equipment to the primary aircraft crew in the event of a ditching.
NOTE 4:	Rescue Support: The provision of a second aircraft to accompany the primary tasked aircraft and which has the capability of rescuing the crew of the primary aircraft in the event of a ditching.
Criteria	7.3.6 Helicopter Underwater Emergency Training (HUET) shall be completed by all regular helicopter pilots and crewmembers at least once every three (3) years.
NOTE 1:	The operator may extend the above HUET training frequency to four (4) years provided this interval is interspersed with a documented regime of ‘Wet Drills’ being pool exercises to maintain core competencies without the use of a dunk mechanism.
NOTE 2:	The operator may provide Emergency Breathing Apparatus (EBA). This is a respiratory protective device designed for emergency use, providing a short-term supply of breathable air to facilitate a safe exit from suddenly hazardous environments. It is lightweight and consists of a small compressed air cylinder connected to a mask.
NOTE 3:	Infrequent crewmembers i.e. Medical Passengers, shall be briefed on all aspects of offshore, emergency, and non-emergency operations including ditching procedures and emergency egress.

7.4 Beacon Search Operations

- Outcome:** **7.4** The operator (providing beacon search capability) shall be equipped to provide safe, effective and efficient location of distress beacons and homing signals.
- Criteria** **7.4.1** The Coordinating Authority that tasks the search asset will provide all available information concerning the task including coordinates where known.
- Criteria** **7.4.3** Operators who provide search assets shall have the capability (equipment, training, experience and currency) to employ standard search techniques and complete standard search patterns as passed to them by the Coordinating Authority.
- Criteria** **7.4.4** Operators who provide search assets should undertake any specialised training necessary (and as made available) to ensure that appropriate search capability and skills is available when tasked.

SECTION 8 AIR AMBULANCE HELIPORT FACILITIES

The purpose of this section is to provide heliport operators with the information required to encourage standardization of air ambulance heliports in terms of markings, equipment, lighting (if applicable) and emergency equipment.

Air ambulance heliport facilities are the responsibility of the registered 'operator' of the facility. In many instances this may be Health New Zealand | Te Whatu Ora.

Any new-build heliports should comply with the requirements in International Civil Aviation Organisation [ICAO] Document 9261 (Fifth Edition) and ICAO Annex 14 Volume II (Fifth Edition), or later, as an industry acceptable standard. (Refer 8.2)

Any existing heliports that are subject to a substantial upgrade should endeavour to comply with these standards.

8.1 Existing Air Ambulance Heliport Facilities

Outcome: 8.1 Safe heliport facilities are provided.

Criteria 8.1.1 The operator of any air ambulance heliport facility intended to be available for use more than 7 days in any consecutive 30-day period shall:

8.1.1.1 be cognisant of the requirement to make formal notification to CAA in accordance with CAR Part 157 - Requirements for notification of construction, alteration, activation or deactivation of heliports.

8.1.1.2 notify, and seek advice from, their regular helicopter air ambulance user prior to conducting any alterations, upgrade, or maintenance in respect of the facility and/or associated infrastructure.

8.1.1.3 ensure the heliport, its infrastructure and surrounding environs are planned and maintained taking account of the data contained in the Rotorcraft Flight Manual [Performance Section] of the largest helicopter expected to use the facility.

8.1.1.4 promulgate the facility in the NZ Aviation Information (NZAIP) Publication and ensure that physical and operational data of the heliport remains current.

8.1.1.5 be able to issue (and cancel) a NOTAM (Notice To Airman).

NOTE: NOTAMs are to be used during repairs and maintenance, an temporary outage or reduced capability.

Criteria 8.1.2 The operator of any air ambulance heliport facility intending to substantially modify an existing facility, should consult with CAA regarding Advisory Circular (AC)139-8 **Aerodrome Design - heliports** version in force at the time.

- Criteria** **8.1.3** Air ambulance heliports should have facilities to access hospitals without the requirement for an ambulance. Access pathways should be of a size that will ensure the safe transit of stretcher trolleys and equipment.
- Criteria** **8.1.4** Fencing, access/barrier systems and signage intended to prevent unauthorised access to the helipad when in use shall be of a standard acceptable to CAA in terms of restricted/unauthorised access, and notification of hazardous areas.
- Criteria** **8.1.5** Air Ambulance heliports shall have wind indicators positioned so as not to be affected by rotor downwash.
- 8.1.5.1 Wind indicators shall be lit, or illuminated, unless restricted to day operations only.
- Criteria** **8.1.5** Heliport infrastructure (e.g. fences, light stands, buildings etc.) should not infringe the Obstacle Limitation Surface (OLS).
- Criteria** **8.1.6** If the heliport is to be used by a helicopter not configured to achieve Performance Class 1, the flight profile shall comply with CAR 91.127 (d),(3)
- 8.1.6.1 It should be so located that an emergency landing can be conducted at any time along the inbound and outbound routes including the take-off and approach paths without causing a hazard to any person or property on the ground.
- Criteria** **8.1.7** Air ambulance operators should develop guidance material [appropriate to the size and type of helicopter used] for the establishment of a temporary Landing Zone (LZ) for primary responses that should be made available to Emergency Services personnel and may be easily transmitted to an individual responsible for preparation of a one-off LZ.
- Note:** Appendix G provides an example, suggesting (but not limited to) the type of information that could be included in this guidance.

8.2 New Build Air Ambulance Heliport Facilities

The operator of an air ambulance helipad, or helicopter air ambulance operator, intending to construct a new heliport, should comply with these criteria.

- Outcome:** 8.2 New heliport operations are safe and reflect current best practice.
- Criteria** 8.1.11 The local aeromedical service provider and CAA should be consulted during the design phase.
- 8.1.11.1 CAA shall be notified in accordance with CAR Part 157
- Criteria** 8.1.12 The heliport shall meet the requirements of CAR Part 91.127(d); and should align with ICAO Document 9261 and Annex 14 Volume II (Fifth Editions), or later, as international industry accepted practice.
- NOTE:** It is recommended that any organisation intending to construct a new heliport seek expert advice regarding the ICAO Document 9261 and ICAO Annex 14 Volume II as an acceptable means of compliance with NZ standards.
- Criteria** 8.1.13 The Touch down/Lift off area (TLOF) shall be at least 1D (rotor diameter) of the largest helicopter that is likely to use the heliport and at a minimum be 16 meters to accommodate rotary aircraft with a Maximum All Up Weight (MAUW) of 7,000kg and
- 8.1.13.1 Its infrastructure and surrounding environs are planned to take account of the data contained in the Rotorcraft Flight Manual [Performance Section] of the largest helicopter expected to use the facility.
- 8.1.13.2 The Obstacle Limitation Surface (OLS) is to be protected by the local territorial authority.

Advisory information (Informative)

The following information is provided for air ambulance heliport operators to reflect what is considered to be industry best practice:

The operator of an air ambulance heliport facility should implement, and maintain, a regular inspection/maintenance regime of the facility to ensure the facility remains safe for air ambulance operations and personnel, and compliant with aviation, and health and safety legislative requirements.

The operator of a 'hospital-based' heliport should have an Emergency Response Plan which is tested annually.

The operator of an 'elevated heliport', where access by emergency services in the event of an accident maybe restricted or delayed, should have a Crash Box (crash rescue equipment) for immediate access by on-site personnel.

The regular air ambulance operator should be consulted with regard to appropriate content of a crash box.

Note: Appendix H provides an example of the elements (but not limited to) of the facility that should be included in this regime.

SECTION 9 COMMUNICATIONS

9.1 Communication Equipment

- Outcome:** 9.1 The service has a range of communication devices approved for the aviation environment that provides two-way communication with the tasking agency and deployed personnel in the expected operational environment.
- Criteria** 9.1.1 In addition to the aviation radios and navigation equipment required to meet the CAA rules for IFR or VFR operations, the aircraft shall be equipped with a range of communication devices to enable safe and efficient communication with relevant agencies including the National Airdesk and SAR coordinating authorities as appropriate, throughout the mission.
- Criteria** 9.1.2 The clinical team should have direct access to Satellite Phone for the purposes of receiving clinical governance consultations.
- Criteria** 9.1.3 Aircraft available for SAR tasking shall have GPS functionality capable of in-flight programming of a search pattern, with recording and up-loading of the tracks flown to the tasking agency or National Airdesk
- Criteria** 9.1.4 Aircraft shall have satellite-based in-flight position reporting that provides position reporting at a maximum of one-minute intervals to the tasking agency or National Airdesk responsible for flight following.
- Criteria** 9.1.5 Aircraft available for SAR tasking in the marine environment shall be equipped with marine radios able to communicate with surface vessels.
- Criteria** 9.1.6 For SAR tasking in hilly or mountainous terrain or remote regions where communications difficulties are likely to arise, consideration should be given to tasking an additional aircraft to a position overhead to act as a communications relay platform for the coordinating authority as per Criteria 7.3.5
- Criteria** 9.1.7 Aircraft supporting land, search and rescue missions shall be equipped with radios capable of communication with the Search Management Team and deployed land assets.
- Criteria** 9.1.8 Where crew members alternate between the rear cabin and the front cabin, the ability to transmit normal operational radio calls shall be available at each station.

SECTION 10 FLIGHT SAFETY ENHANCEMENT DEVICES

10.1 Traffic Collision Avoidance Systems

Outcome: **10.1** Aeromedical aircraft should be equipped with an approved Traffic Collision Avoidance System (TCAS) to supplement the 'See and Avoid' concept and minimize the risk of a 'proximity event' or mid-air collision while operating in high traffic density airspace.

Criteria **10.1.1** The system shall have an audible advisory of traffic threat.

Criteria **10.1.2** The system shall have a visual display to show location and bearing of traffic threat.

SECTION 11 PATIENT SAFETY

11.1 Patient Loading and Unloading Procedures

Outcome: 11.1 Patient loading and unloading promotes safe lifting practices.

Criteria 11.1.1 Where necessary, for the safe loading and unloading of patients, loading devices shall be made available by the aircraft operator and meet relevant WHS requirements.

Criteria 11.1.2 The loading device shall be able to be stored at airport locations or carried on the aircraft.

Criteria 11.1.3 Lifting devices shall be maintained according to manufacturer's or other acceptable maintenance instructions.

Criteria 11.1.4 The user or owner of the device shall ensure a maximum allowable weight limit is documented on the device.

Criteria 11.1.5 A pre-loading and planning briefing should be undertaken between air and ground crew.

NOTE: The loading and unloading of bariatric patients will require special consideration. The operator should have documented procedures, policies that address the transport of bariatric patients.

11.2 Stretchers

Outcome: 11.2 The stretcher system used in the aircraft meets all service and safety requirements.

Criteria: 11.2.1 The stretcher is able to be secured and meets safety requirements.

Criteria 11.2.2 The stretcher is fitted with appropriate occupant restraints with at least four harness points for supine patients and complies with load tests requirements as per CAA requirements [FAR 23.561].

- Criteria** **11.2.3** Stretchers should be compatible with interfacing services and comply with relevant standards for restraint systems.
- Criteria** **11.2.4** Stretcher bridges should be able to be easily applied and securely fitted.
- Criteria** **11.2.5** Unless authorised by both the stretcher manufacturers **and** the Rotorcraft Fight Manual Supplement, stretcher bases shall not be reversed to facilitate a forward-facing patient.

11.3 Assisted ambulatory patients

- Outcome:** **11.3** Ambulatory patients are safely assisted on or off the aircraft.
- Criteria** **11.3.1** Clinical crew are aware of any weight limitation of the stairs where a limit is stated.
- Criteria** **11.3.2** Patients/relatives are assessed in order to comply with space and weight limitations.
- Criteria** **11.3.3** Infants and children are secured in the appropriate restraining devices.
- Criteria** **11.3.4** Ambulatory patients/relatives shall receive a safety briefing from the crew before boarding the aircraft.
- 11.3.4.1** A safety briefing should be supplemented with visual indicators such as a Briefing Card (using language understood by the patient/relative).

SECTION 12 INDEPENDENT CERTIFICATION

12.1 Certification to this Standard

Outcome:	12.1 The aeromedical service is certified to this Standard by an appropriately qualified independent audit agency.
Criteria	12.1.1 The service provider shall demonstrate compliance with this Standard via an independent audit process, resulting in certification.
Criteria	12.1.2 The independent audit agency shall be endorsed by a recognised accreditation scheme or equivalent that ensures good audit practice and audit consistency.
Criteria	12.1.3 The independent audit agency utilises an appropriate mix of auditor competency and specific industry, clinical and technical knowledge to audit the service against this Standard.
Criteria	12.1.4 The independent audit agency adopts a risk management approach to agreeing time frames for addressing non-compliance and audit findings.
Criteria	12.1.5 The independent audit agency has an escalation process that alerts the funding contract administrators when non-compliance issues rated as 'high' or 'critical' are not resolved in the required timeframe as specified by the risk matrix.
Criteria	12.1.6 Except when operating in accordance with the Temporary non-conformance provision in sect. 1.4 Standard Administration, the operator shall ensure each air-frame remains compliant with this Standard. The independent audit agency shall review the conditions required for any/all temporary non-conformance departures from the Standard as has been declared by the operator.
Criteria	12.1.7 The operator shall produce on demand evidence of current certification in relation to each air-frame used in the delivery of aeromedical and/or air SAR services. This shall include air-frames contracted to provide backup service when the primary air-frame is out of service.

APPENDIX A Definitions (Normative)

Term, abbreviation or acronym	Name, alternative term or informative	Description
Administrator		Administrator of this Standard
ACC	Accident Compensation Corporation	ACC – Accident Compensation Corporation (joint funder of ambulance services)
Aeromedical services	Aviation and associated clinical provision	Term aeromedical is intended to be a consistent descriptor throughout this document for combined aviation and associated clinical service
Aided/Unaided		Use of the term 'aided' refers to operations during night VFR under NVIS Use of the term 'unaided' refers to operations during night VFR without the use of NVIS
Aircraft	a/c	In this document shall mean 'Helicopter' or 'Fixed wing'
Ambulance Team		Formerly National Ambulance Sector Office (MOH/ACC)
AOC	Air Operator Certificate	Issued by NZCAA under Part 119
Audit	Verification	A systematic review against predetermined criteria contained in this Standard and associated legislation
CAA	Civil Aviation Authority	Interchangeable with 'the Director'
CAR	The Rules	Civil Aviation Rules
Clinical Crew		Defined as anyone apart from the pilot or co-pilot who is required as part of their role to assist or care for patients whilst in transit and is expected to perform this clinical role regularly as required by their position specification.
Crewmember	crew	An individual who performs a task or duty in the context of this Standard (Note: - this is not consistent with the CAA definition in CAR Part 1)
Competency-based Training and Assessment		The development of competency-based training and assessment should be based on a systematic approach whereby competencies and their standards are defined. Training is based on the competencies identified, and assessments developed to provide evidence these competencies have been achieved.
Current accepted best practice	Involves the current accepted range of safe and reasonable practice included to oversee efficient and effective use of available resources to achieve quality outcomes for patients.	Current accepted practice should also reflect standards for service delivery where these exist. This may include but is not limited to: <ul style="list-style-type: none"> (a) Codes of practice; (b) Research; (c) Evidence-based practice; (d) Professional standards;

Term, abbreviation or acronym	Name, alternative term or informative	Description
		(e) Best practice guidelines; (f) Recognised/approved guidelines; and (g) Benchmarking.
[The] Director	Director of Civil Aviation	Interchangeable with 'CAA'
Exposition	Operations Manual	A document suite that describes methods by which an operator will comply with the Civil Aviation Act and CA Rules
Health New Zealand Te Whatu Ora	Joint Funder of Aeromedical Services	Health New Zealand Te Whatu Ora
HSWA	Health and Safety at Work Act 2015	Includes associated Regulations
(Pilot) In Command Under Supervision	ICUS	Pilot in Command Under Supervision (ICUS) means the performance by a co-pilot (or a pilot in a single pilot aircraft), of the duties of a pilot-in-command during flight under the supervision of a pilot in command designated for the purpose by the Operator.
Medical passenger		Is defined as anyone apart from the pilot or co-pilot who is required as part of their role to assist or care for patients whilst in transit on a non-regular or one-off basis.
NZSAR / RCCNZ	New Zealand Search and Rescue/ Rescue Coordination Centre NZ	Search and Rescue Coordinating Authorities
New Zealand Search and Rescue Aviation Standard	NZSAR Aviation Standard DRAFT Feb. 2024	A Standard under development at the time of writing under NZSAR Coordinating Authorities to establish aviation standards for SAR service providers not already captured under this Aeromedical Standard i.e. non-contracted commercial operators
Ops Specs	Operations Specifications	Issued by CAA in conjunction with an operator's Air Operator Certificate. Details such as aircraft approved for use, Senior persons, and approvals for training, NVIS and SMS are recorded and updated in the 'Ops Specs'
Operator	Service provider	See 'service provider' below
Organisation		Includes companies, associations, statutory bodies, agencies, trusts, groups, incorporated societies, independent practitioners, and individuals accountable for the delivery of the service to the consumer.

Term, abbreviation or acronym	Name, alternative term or informative	Description
Pilot in Command	PIC or pilot	Pilot of the a/c legally responsible for the safety of the a/c, pax and crew. This person manipulates the aircraft controls
PCBU	Person Conducting a Business or Undertaking	As defined in the HSWA
Quality Management System	QMS	A framework for quality management systems e.g. ISO 9001
Risk management framework	A component of the Safety Management System	Service providers individual framework for managing risk modelled on ISO31000 Risk management – Guidelines
SAR	Search and Rescue SAROPS	SAR tasking conducted outside of the Health New Zealand Te Whatu Ora /ACC contract typically the SAR coordinating authorities RCCNZ and NZ Police
Service provider	'The operator'/organisation	An aviation/clinical service provider under contract to Health New Zealand Te Whatu Ora and ACC The term is interchangeable with 'operator.' Each will be commonly used in context i.e. 'operator' in the context of operations under an AOC 'Service provider' in a broader aeromedical context 'organisation' in the context of NZS 8156
Shall	Imperative (also will, 'must')	Where used in this Standard denotes a mandatory requirement
Should	Suggestive (also may, 'could' 'can')	Where used in this Standard refers to practices that are advised or recommended but are non-binding.
SMS	Safety Management System	See CAA rule P100 and CAA AC100-1
SOP(s)	Standard Operating Procedure(s)	Documented procedures written by an operator to provide instruction or guidance on how a routine or specialised task is to be performed.
Stakeholder	In some context – a PCBU	A person or organisation that can affect, be affected, or perceived to be affected by a decision or activity
Threat & Error Management	TEM	Identification and management of external and internal threats to the safety of the task

APPENDIX B Exemption Risk Assessment (Informative)

Exemption Risk Assessment

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RISK ASSESSMENT

BACKGROUND

[The operator– provide brief organisational description]

[operator] is the primary stakeholder in the following risk assessment.

NEW ZEALAND AEROMEDICAL & AIR RESCUE STANDARD V4.0

State Standard ‘Criteria’ that is the subject of this application [For example]:

2.3.1.1 Rotary: Group 1 - Pilot in Command: IFR Multi Engine Operations

Pilot Licence:

Total Flight Experience:

Night Experience:

Air Transport Operations (ATOPs):

Night Vision Goggles (NVG):

Instrument Flight Rules (IFR):

Single Pilot (IFR):

Instrument Metrological Conditions:

OBJECTIVES

(assuming the application is in respect of Pilot PIC time for this example)

[Insert background/rationale for the application]

The objective of this risk assessment are as follows:

Assess the safety risks of operations involving a candidate with lower than prescribed pilot in command experience.

Produce procedures to mitigate any identified risks whilst the candidate is operating as pilot in command.

ASSUMPTIONS

The following assumptions have been made during the development of the risk assessment plan:

- a. The candidate will meet the CAA qualification and experience requirements for PIC under CAR 135.
- The candidate will meet [the operator] exposition requirements for command.

LIMITATIONS

The following limitations to risk management strategy have been identified:

- a. Aircraft operating limitations must be complied with.
- b. No significant decrease in the level of operational safety will be accepted.
- c. Must be compliant with all New Zealand Civil Aviation Authority rules.
- d. Must be compliant with existing company operating procedures and exposition.
- e. A resultant Risk Level higher than “Low” will exceed tolerable risk levels.

RISK CRITERIA

The level of risk will be determined by applying consequence vs likelihood.

RISK IDENTIFICATION

Hazards were reviewed to determine credible scenarios where hazards create an undesirable safety risk or operational outcome. These are shown below and listed in the risk analysis table. Management and Training pilots contributed to the process of identifying these risks.

RISK ANALYSIS

The risk analysis relies on the subjective assessments of ***** – Training Manager / Standards Pilot and ***** – Operations Manager and supported by hazard information data where available.

Risks were analysed to identify likelihood and severity using the descriptors found in the following matrix:

Recommended that the operator insert their own Risk Matrix model [2.9 – 2.14] – this example included for information only.

$$\text{Risk Level} = \text{Severity} \times \text{Probability}$$

SEVERITY

The ‘Severity Guideline’ (below) is used as an effective model.

TABLE 1: SEVERITY GUIDELINE

Severity	Personnel	Environment	Material	Reputation/ Image	Continuity of Service
NEGLIGIBLE	Superficial injuries - bruising	Negligible effects	Damage <\$10K	Light Impact-affects an Individual	Minimal effect – 1 aircraft out of service for ‘X’ hrs
MINOR	Slight injuries-cuts, tissue injuries	Little impact-spill at hangar	Damage <\$50K	Limited Impact-some local negative reports	Short term effects – off-line for a day
SUBSTANTIAL	Serious Injuries-broken bones	Noteworthy local effect-Damage land/structure	Damage <\$250K	Considerable Impact on community/area – damage to reputation	Major discontinuity – long term loss of aircraft use. Potential hire/ replacement
CRITICAL	Fatality	Effect difficult to contain fuel/oil leak into waterways	Damage <\$1 Million	National Impact-Negative National press or TV	In jeopardy –permanent loss of aircraft.
CATASTROPHIC	Multiple fatalities	Massive effect – high level pollution or destruction	Damage >\$1 Million	International Impact-Negative press & TV reports	Potential cessation – Loss of operational ability for extended period.

PROBABILITY

The probability of a risk occurring often remains unchanged despite the potential for there to be many different outcomes and associated severity levels.

TABLE 2: PROBABILITY GUIDELINE

Probability	Explanation
Improbable	Almost unthinkable that this would actually occur. <i>It has not known to have occurred in the history of the sector (1% chance)</i>
Rare (unlikely)	Very unlikely to occur. <i>It may have occurred in the NZ sector before, but probably not within the flight training industry. (2-25%)</i>
Possible	Not considered likely to occur. <i>Generally considered to be an Infrequent or irregular occurrence. It is likely to have occurred at some point before within the flight training industry. (26-50%)</i>
Probable (likely)	Anticipating this could occur. <i>This event is likely to occur and has happened numerous times before, it may even occur on a semi-regular basis (more often than not). (51-90%)</i>
Almost Certain	Almost certain to occur. <i>This is likely to occur frequently in all areas and on a regular basis. You can almost “plan for this to happen”. (91%+)</i>

RISK MATRIX

TABLE 3: RISK MATRIX

SEVERITY	Catastrophic 5	5	10	15	20	25
	Critical 4	4	8	12	16	20
	Substantial 3	3	6	9	12	15
	Minor 2	2	4	6	8	10
	Negligible 1	1	2	3	4	5
	Improbable 1	Rare 2	Possible 3	Probable 4	Almost Certain 5	
	PROBABILITY					

Risk Level colour code:

Acceptable	Low	Serious	High	Unacceptable
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RISK ASSESSMENT

RESIDUAL RISK

RISK/HAZARD REVIEW

Implementation of regular auditing/reviewing of the risks, to ensure the preventative/protective measures that have been put into place are apparent, effective and giving the expected outcome.

CANDIDATE EXPERIENCE

OVERVIEW:

BACKGROUND/EXPERIENCE:

[Operator to insert]

[The candidate's] curriculum vitae, is attached to this assessment at appendix II

RISKS IDENTIFIED BY THIS ASSESSMENT

OVERVIEW:

The areas assessed for applicable risks are as follows:

The candidate has the following experience relative to the Air Ambulance Standard operations:

	Air Ambulance Standard	Candidate
Total Flight Experience		
Night Experience		
Air Transport Operations (ATOPs)		
Night Vision Goggles (NVG) Endorsement		
Instrument Flight Rules (IFR)		
Single Pilot (IFR)		
Instrument Metrological Conditions (IMC)		
External Load Operations Experience		

This assessment concluded that areas for further risk analysis were:

- a) ****
- b) ****
- c) ****

RISK TREATMENT

The following table summarizes the risk treatment plan. These treatments address all the risks identified above:

- a) *****
- b) *****
- c) *****

TABLE 4: RISK TREATMENT PLAN

Risk Statement	Risk Level	Risk Treatment	Final Risk

TRAINING PROGRAM

Emphasis is required in the following areas:

- a. *****
- b. *****
- c. *****

A non-revenue recurrent training session will be completed within 90 days following the above competency check. This session will focus on the above areas.

Mitigation

At the completion of this training and assessment [the candidate] will be restricted in accordance with his individual Pilot Authorisation form.

Operations will be restricted depending on the nature and complex-ability of the task IAW with his Individual Pilot Category, A,B,C or D.

Flight supervision will be provided at the flight planning stage via phone for those tasks authorised to conduct or by further physical instruction and supervision provided for those tasks not yet competent in.

Conclusion

OPERATIONAL RESTRICTIONS

MONITORING AND REVIEW

The Flight Operations Manager will formally review the candidate's performance following the 90-day training flight and review the restrictions. The results of this review will be retained on file and will form part of the basis of any mitigation or restriction alterations.

[Append supporting documentation](#)

Grading Specifications: Example only

Grade A – Authorised to operate / undertake activities conducted by the organisation, assume responsibility for operational aspects of the flight, supervise other pilots and remove and install role equipment.

Grade B – Authorised to operate / undertake activities conducted by the organisation, assume responsibility for operational aspects of the flight and remove and install role equipment.

Grade C – Authorised to operate only when under the supervision of a Category A pilot.

Grade D – Authorised to operate only under the **direct** supervision of a Category A pilot who must be onboard the aircraft.

APPENDIX D - Crewman Operational Authorisation Form (Informative)

Crewman: Base: Last update:

Item Example only	Type	Type	Authorised By:	Conditions/Limitations
By Day				
IHT				
Pre Hospital				
SAR Ops				
Hoist Ops - Land				
Hoist Ops - Wet				
Hoist Ops - Deck				
Hoist Ops - High Line				
By Night				
IHT				
Pre Hospital				
SAR Ops				
Hoist Ops - Land				
General /Pilot assist				
Program EFB				
Use of non-aviation radios				
Aircraft Refuelling				
Instructor				
Operational Instructor				
Crewman Instructor				

NOTE: A signature in the appropriate column by the Operation’s Manager (or delegate) constitutes authority to undertake the required operation, IAW with any restrictions or limitations placed upon the individual crewman, which may be based on operational experience. Crewman must fly within the conditions attached to their authorisations and consult with the Operations Manager or nominee when required.

Crewman Instructor Signature: _____ Date: _____

Base Manager Signature: _____ Date: _____

Crewman Signature: _____ Date: _____

APPENDIX E – Winch Operator Training Syllabus [Example]

Winch Operator Training Syllabus		Classroom Session	Hangar Session	Flight With Instructor	Final Test/Check
Ground Training	Regulatory				
	Part133 Ops/Part135 Ops	•			Written Test Plus Demonstration of Recall
	Operators SOPs	•			
	RFM (Hoist Related)	•			
	Record Keeping/Authorizations	•			
	Incident Reporting	•			
	Application of ASNZS/1891 or Equivalent Standards	•			
	Aircraft Specifications & Limitations				
	AC Dimensions & Specifications	•	•		Written Test Plus Demonstration of Practical Elements
	AC C of G/Load Limitations	•	•		
	AC Performance	•	•		
	AC Role Change Configurations	•	•		
	Hoist Specifications				
	Functionality and Safety Features	•	•		Written Test Plus Demonstration of Practical Elements
	Limitations	•	•		
	Maintenance	•	•		
	Cable Construction/Unserviceability's	•	•		
	Cable Maintenance	•	•		
	Cable Limitations	•	•		
	Pre and Post Flight Checks	•	•		
	Functional Checks	•	•		
	Shock Loading	•	•		
	Rescue Equipment				
	Harness Donning/Doffing	•	•		Suitable Testing and Demo of Practical Elements
	AC Approved Hard Points	•	•		
	Equipment Types/Ratings/Applications	•	•		
PPE for Crew/Patients	•	•			
	•	•			
Communications					
Terminology Interpretation	•	•		Suitable Testing and Demo of Practical Elements	
Application of Patter	•	•			
Clearance Patter Around the AC	•	•			
Hand Signals	•	•			
Loss of Communications	•	•			
Emergencies					
Hoist Emergencies	•	•		Suitable Testing and Demo of Practical Elements	

Flight Training	Over Land Training (No Hoist)				
	AC Positioning (20x20m Square)	•	•	•	Sign Off/Authorized IAW the Operators Exposition
	Open Area Circuits	•	•	•	
	Sloping Ground Approaches	•	•	•	
	Hover Offload/Load (STEP) of Personnel	•	•	•	
	Confined Area Hover	•	•	•	
	Confined Area Tail Turns	•	•	•	
	Confined Area Landing	•	•	•	
	Land Hoist Operations				
	Open Area Triangles with Emergencies	•	•	•	Sign Off/Authorized IAW the Operators Exposition
	Open Area Singles/Doubles/Stretchers	•	•	•	
	Confined Area Singles/Doubles/Stretchers	•	•	•	
	Delivery of Stores	•	•	•	
	Emergencies	•	•	•	
	Aquatic Operations				
	Deck Winching	•	•	•	Sign Off/Authorized IAW the Operators Exposition
	High Line Transfer Winching	•	•	•	
	Wet Winching	•	•	•	
	Loss of Reference Considerations	•	•	•	
	Night Hoist Operations (Unaided)				
	Use of Light Sources	•	•	•	Sign Off/Authorized IAW the Operators Exposition
	Approaches to Land	•	•	•	
	Clearances	•	•	•	
	Open Area Singles/Doubles/Stretchers	•	•	•	
	Confined Area Singles/Doubles/Stretchers	•	•	•	
	NVIS Hoist Operations				
	AC91-13	•	•	•	Sign Off/Authorized IAW the Operators Exposition
	Approved NVIS Course	•	•	•	
AC NVIS Functionality	•	•	•		
Operators SOP's	•	•	•		
NVIS Patter	•	•	•		
Use of Approved Light Sources	•	•	•		
Open Area Singles/Doubles/Stretchers	•	•	•		
Confined Area Singles/Doubles/Stretchers	•	•	•		
Aquatic Operations (Where Applicable)	•	•	•		

APPENDIX F – Down the Wire Person Training Syllabus [Example]

Down the Wire Person Training Syllabus		Class Session	Hangar Session	Flight With Instructor	Final Test/Check
Ground Training	Regulatory				Demonstration of Recall to Acceptable Level
	Part133 Ops/Part135 Ops	•			
	Operators SOPs	•			
	Record Keeping/Authorizations	•			
	Incident Reporting	•			
	Aircraft Specifications & Limitations				
	AC Dimensions & Specifications	•	•		
	AC C of G/Load Limitations	•	•		
	AC Role Change Configurations	•	•		
	Hoist Specifications				
	Functionality and Safety Features	•	•		
	Cable Limitations	•	•		
	Shock Loading	•	•		
	Cable Specifications				
	Cable Construction	•	•		
	Cable/Hook Unserviceability's	•	•		
	Pre and Post Flight Checks	•	•		
	Rescue Equipment				Demonstrate with 100% Recall
	Harness Donning/Doffing	•	•		
	AC Approved Hard Points	•	•		
	Equipment Types/Ratings/Applications	•	•		
	PPE for Crew/Patients	•	•		
	Disembarking/Embarking				
	Hover Offload/Load (STEP)	•	•		
	Sloping Ground Procedures	•	•		
Hover Jumping (Where Applicable)	•	•			
Hand Signals	•	•			
Down the Wire Procedures					
Hook Procedures	•	•			
Hooking on Equipment/Personal	•	•			
Hand Signals	•	•			
Loss of Communications	•	•			

Flight Training	Emergencies				
	Hoist Emergencies (Explanatory)	•	•		
	Emergency Terminology	•	•		
	Immediate Actions (IA's)	•	•		
	Land Hoist Operations				
	Open Area Hover Offload/Load (STEP)	•	•	•	Sign Off/Authorized IAW the Operators Exposition
	Confined Area Hover Offload/Load (STEP)	•	•	•	
	Open Area Singles/Doubles/Stretchers	•	•	•	
	Confined Area Singles/Doubles/Stretchers	•	•	•	
	Delivery/Recovery of Stores	•	•	•	
	Aquatic Operations				
	Deck Winching	•	•	•	Sign Off/Authorized IAW the Operators Exposition
	High Line Transfer Winching	•	•	•	
	Wet Winching	•	•	•	
	Hover Jumping (Where Applicable)	•	•	•	
	Night Hoist Operations (Unaided)				
	Use of Light Sources	•	•	•	Sign Off/Authorized IAW the Operators Exposition
Communications Specific to Night Operations	•	•	•		
Open Area Singles/Doubles/Stretchers	•	•	•		
Confined Area Singles/Doubles/Stretchers	•	•	•		
NVIS Hoist Operations					
AC91-13	•	•	•	Sign Off/Authorized IAW the Operators Exposition	
Approved NVIS Course	•	•	•		
AC NVIS Functionality	•	•	•		
Operators SOP's	•	•	•		
NVIS Patter	•	•	•		
Use of Approved Light Sources	•	•	•		
Open Area Singles/Doubles/Stretchers	•	•	•		
Confined Area Singles/Doubles/Stretchers	•	•	•		
Aquatic Operations (Where Applicable)	•	•	•		

Down the Wire Person Training Syllabus cont'd...		Classroom Sessions	Hangar Sessions	Flight With Instructor	Final Check/Test
FLIGHT TRAINING	Daytime Over Land Hoist Ops				
	Open Area Hover Unload / Load				Check Flight Part 135/133 Sign Off
	Sloping Ground Hover Unload / Load	•	•	•	
	Open Area Singles	•	•	•	
	Open Area Doubles	•	•	•	
	Open Area Stretcher	•	•	•	
	Confined Area Singles	•	•	•	
	Confined Area Doubles	•	•	•	
	Over Water Ops				
	Deck Winch Singles	•	•	•	Check Flight Part 135/133 Sign Off
	Deck Winch Doubles	•	•	•	
	Hi - Line	•	•	•	
	Hover Jump	•	•	•	
	Wet Winch Singles	•	•	•	
	Wet Winch Doubles	•	•	•	
	Night Ops Over Land				
	Open Area Singles	•	•	•	Check Flight Part 135/133 Sign Off
	Open Area Stretcher	•	•	•	
	Confined Area Singles	•	•	•	
	NVGO Hoist Ops (If Applicable)				
	AC 91-13	•	•	•	Check Flight Part 135/133 Sign Off
	Approved NVGO Course	•	•	•	
	Aircraft NVIS Functionality	•	•	•	
	Operators SOPs	•	•	•	
	NVGO Patter Terminology	•	•	•	
Correct Use of Light Sources	•	•	•		
Open Area Winch	•	•	•		
Confined Area Winch	•	•	•		

APPENDIX G Landing Zone (LZ) - Preparation (Informative)

Landing Zone (LZ) - Preparation for receiving emergency response helicopters at an MVA or other unprepared emergency scenes

Action	Make sure you follow these instructions when preparing a landing zone for inbound emergency helicopters.
Situation	Crews must know how to properly prepare a Landing Zone (LZ) to receive inbound emergency helicopters in a way that does not compromise the safety of the aircraft and those on the ground.
Landing Zone Preparation	<ol style="list-style-type: none"> 1. A suitable size for the helicopter landing zone for typical emergency/air ambulance helicopters is about '2 x tennis courts' (40m x 40m). This will not always be possible. A roughly equivalent area such as a cleared stretch of road may have to be used. 2. When selecting an LZ, LOOK UP to check for the presence of overhead wires. Do not position an LZ underneath overhead wires or where the helicopter needs to cross over wires during its approach or departure: <ul style="list-style-type: none"> • The visibility of wires may be obvious to an observer on the ground looking up (against a sky background). However this may not be the case when viewed from helicopter cockpit looking down (against a ground background). • If the presence of wires is unavoidable, make every effort to identify to the pilot, visually or by radio, before they commence their final approach. 3. Make sure the LZ (and surrounding area as far as possible) is cleared of loose items that could be dislodged or blown by the helicopter downwash, potentially endangering the helicopter and bystanders, for example blankets, sheets, tarpaulins, etc. 4. Many newer helicopters operated by emergency helicopter providers (Eg: AW 169, EC145), are heavier and have a stronger rotor wash. This means that they can blow over larger items than the more common BK117 rescue helicopters you may have had experience with. 4. The selected LZ must be clear of all obstacles (for example rocks, fences, troughs, posts/poles) protruding above ground, and have a slope of no more than 3°. 5. Assign at least one person to secure the LZ and prevent any approach from the public.

-
6. Assign one person to provide visual landing information to the pilot (see next section).

The final decision where to land the helicopter is the responsibility of the pilot.

Despite your best efforts, the pilot may decide to land the helicopter at another location. Do not be offended. The crew may have identified hazards at the selected LZ that aren't evident to you.

The pilot may carry out several orbits of the scene before committing to landing. They will be assessing the landing zone, safe approach, departure routes, and looking for all hazards (especially wires).

On hearing or seeing the inbound helicopter(s)

1. Helicopter performance is best when landing and taking off into the direction of the wind.
 - The pilot will be looking for someone on the ground (the Marshaller) to indicate (or confirm) the wind direction.
 - They will be looking for a person standing at the upwind end of the selected LZ, with their back to the wind and outstretched arms.
 - **They will not require, or be expecting, any other marshalling signals except outstretched arms.**
2. Once it is evident the pilot has located the landing zone, established the wind direction and the helicopter is on the final approach, the Marshaller may move clear of the landing zone.
 - If elected to remain in position while the helicopter lands, crouch down, remain in position and let the rotor wash pass.



At Night

1. If radio comms (such as with ground ambulance) cannot be established at a night scene, the helicopter may choose not to land for safety reasons.
2. All vehicle lights (including flashing and strobe lights) should be ON to assist the identification of the scene by the helicopter crew from a distance.
3. Once it is evident the pilot has identified the scene, all flashing and strobe lights must be turned OFF. Vehicle lights may remain ON (headlights dipped).
4. A light should be shone onto the Marshaller to help the pilot identify the LZ and wind direction.

On Landing

Immediately upon landing, the helicopter crew will exit the helicopter and assume responsibility for the safety and security of the landing zone. They may request your assistance with this. You may do so only under the following conditions:

Do not approach the helicopter or move under the rotor disk while the helicopter is running unless you are signalled to do so by the helicopter crew or the pilot. This will be indicated by hand movement or a nod of the head, but only after eye contact is established.



Safe Approach Areas



1. Crews working around helicopters must understand the safe approach areas applicable to the differing helicopter types. If, for any reason, you do need to approach a helicopter while it is running, note the following:
 - The rear of all helicopters is occupied by the tail rotor that can be invisible when spinning. **It is a prohibited area for all personnel working around helicopters.**

Refer to Figure2 below for safe and prohibited approach areas for helicopters.

Figure 2: Approach zones for all BK117, EC145 and other common helicopter types



APPENDIX H Helipad Inspection Checklist (Informative)

Sample Helipad Monthly Checklist

CONTEXT

[The helipad operator] must ensure that the helipad used for emergency medical transport remains safe for users, and fit-for-purpose. It therefore requires that a monthly internal audit of the helipad is completed, and any non-conformances are remedied as a priority.

Directions: for completing the monthly review

- Step 1: The review must be completed by a competent person
- Step 2: It must be completed by the 20th each month
- Step 3: Scan or email the completed self-assessment to *****

For further information or if you have any queries please contact:

Date site audit completed:		
----------------------------	--	--

Full name of checker/s	Designation

SAFETY MANAGEMENT PRACTICES

Nr.	Points of compliance	Yes	No	Remedial actions (what, by whom, by when)
1	Previous checklist – remedial actions completed/deferred			
2	All boundary fences are intact and secure (walk the perimeter)			
3	All entry point controls are secure and operational			
4	All safety signage is in good condition, no fading, graffiti, &/or materials. Check overgrowth of flora in front of signs			
5	Windsock is intact and bright, no visible deterioration, holes or other signs of wear (check lighting if applicable)			

Nr.	Points of compliance	Yes	No	Remedial actions (what, by whom, by when)
6	Helipad and surrounds are free from all materials; no loose equipment/materials within the perimeter of the helipad.			
7	All lighting is operational – Check each activation source.			
8	Helipad surface condition - clear of surface debris / condition of markings			
9	Approach/Departure paths not affected by recently erected structures/wires/ light stands/construction activity			
10	Ambulance access gate unobstructed			
11	Emergency response equipment (fire ext. crash box) serviceable – not tampered with			
12	Any communications from air ambulance operators regarding the pad acted on			
13	Any changes to local environment requiring notification of procedural changes; Construction, earthworks, temporary obstructions, proximity of public etc. Local users/NOTAM/AIPNZ			
14	Security cameras; Functional (if applicable)			
15	Required budget expenditure considerations; Upgrades, replacements, improvements, maintenance.			

Comments:

Sketches/Photos

Request for changes, updates or corrections:

Please contact:

Standard's Administrator - Email - dwaters@ambnz.org.nz