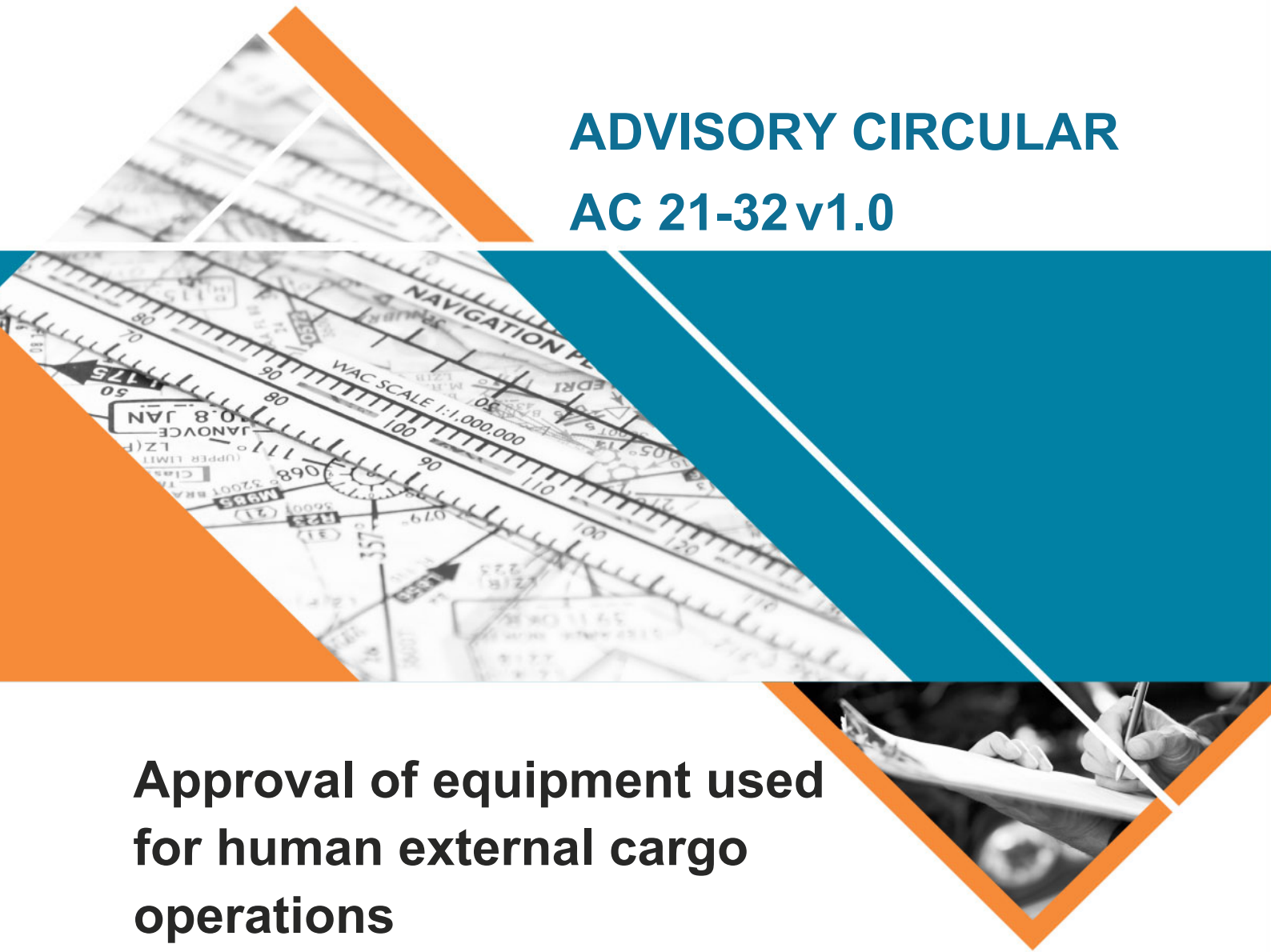




ADVISORY CIRCULAR AC 21-32v1.0



Approval of equipment used for human external cargo operations

| | |
|----------|--------------|
| Date | October 2021 |
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Advisory circulars are intended to provide advice and guidance to illustrate a means, but not necessarily the only means, of complying with the Regulations, or to explain certain regulatory requirements by providing informative, interpretative and explanatory material.

Advisory circulars should always be read in conjunction with the relevant regulations.

Audience

This advisory circular (AC) applies to:

- operators of Australian registered rotorcraft conducting human external load operations
- maintenance organisations that modify rotorcraft for external load operations
- designers of rotorcraft modifications
- authorisation holders manufacturers of articles that are to be used during external load operations.

Purpose

This AC provides guidance about the various pathways and options for the approval of Personnel Carrying Device Systems (PCDS) used with HEC capable rotorcraft when performing Human External Cargo operations.

The authorisation also discussed are the types of approvals available, the associated manufacturing process requirements, and the approval of articles such as body harnesses and restraints.

Also discussed is the use of generic fall arrest items such as carabineers and ropes when used as part of the PCDS.

For further information

For further information, contact CASA's Airworthiness and Engineering Branch (airworthiness@casa.gov.au or telephone 131 757).

Unless specified otherwise, all subregulations, regulations, Divisions, Subparts and Parts referenced in this AC are references to the *Civil Aviation Safety Regulations 1998 (CASR)*.

Status

This version of the AC is approved by the Branch Manager, Airworthiness and Engineering Branch.

| Version | Date | Details |
|---------|------|-------------|
| v1.0 | | Initial AC. |

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APPROVAL OF EQUIPMENT USED FOR HUMAN
EXTERNAL CARGO OPERATIONS

1 Reference material

1.1 Acronyms

The acronyms and abbreviations used in this AC are listed in the table below.

| Acronym | Description |
|---------|---|
| AC | advisory circular |
| ATSO | Australian technical standard order |
| ATSOA | Australian technical standard order authorisation |
| CASA | Civil Aviation Safety Authority |
| CASR | <i>Civil Aviation Safety Regulations 1998</i> |
| CFR | Code of Federal Regulations |
| CS | Certification Specification |
| ETSO | European Technical Standard Order |
| HEC | human external cargo |
| MOS | Manual of standards |
| PCDS | Personnel Carrying Device System |
| RFM | Rotorcraft Flight Manual |
| SAR | Search and rescue |
| TSO | Technical Standard Order |

1.2 Definitions

Terms that have specific meaning within this AC are defined in the table below. Where definitions from the Regulations have been reproduced for ease of reference, these are identified by grey shading. Should there be a discrepancy between a definition given in this AC and the Regulations, the definition in the Regulations prevails.

| Term | Definition |
|---|---|
| Article | Materials, parts, processes, or appliances approved under the provision of 21.305(e) or 21.305A. (reference regulation 21.601(3), AC 21-601 and CFR 14 Part 21 regulation 21.1) |
| Article Manufacturer | The person who controls the design and quality of the article produced, including the parts of them and any processes or services related to them that are procured from an outside source. (reference regulation 21.601(2)(e)) |
| Personnel carrying device system (PCDS) | A device or system that has the structural capability and features needed to safely transport occupants external to the rotorcraft during HEC operations. A PCDS includes, but is not limited to, life safety harnesses, and rigid baskets or cages either attached to a hoist or cargo hook or mounted to the rotorcraft airframe. The system may also include any miscellaneous items such as |

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| Term | Definition |
|------|-------------------------|
| | ropes, carabiners, etc. |

1.3 References

Regulations

Regulations and other legislation are available on the Federal Register of Legislation website
<https://www.legislation.gov.au/>

| Document | Title |
|----------|---|
| Part 21 | Certification and airworthiness requirements for aircraft and parts |
| Part 133 | Australian Air Transport Operations—Rotorcraft |
| Part 138 | Aerial work operations |

Advisory material

CASA's advisory circulars are available at <http://www.casa.gov.au/AC>

| Document | Title |
|-----------------------|--|
| AC 21-08 | Approval of modification and repair designs under Subpart 21.M |
| AC 21-12 | Classification of design changes |
| AC 21-15 | Supplemental Type Certificates |
| AC 21-27 | Manufacturing approval - overview |
| AC 21-601 | Australian Technical Standard Order authorisation |
| FAA AC 27-865 | External Load Attaching Means (note: this AC is contained within FAA AC 27-1B) |
| FAA AC 29-865 | External Load Attaching Means (note: this AC is contained within FAA AC 29-2C) |
| EASA CS-27.865/29.865 | Acceptable Means of Compliance and Guidance Material - External loads |
| FAA AC 21-45 | Commercial Parts |

1.4 Forms

CASA's forms are available at <http://www.casa.gov.au/forms>

| Form number | Title |
|--------------------------|-----------------------------|
| Form 849 | Part 21 production approval |

2 Background

- 2.1.1 Rotorcraft external load operations in Australia may be conducted as either a medical transport operation approved under Part 133 or an aerial work operation under Part 138.
- 2.1.2 The MOS for Part 133 and Part 138 requires the HEC equipment, fittings, lines, safety harnesses, restraint straps and rescue harnesses must meet the requirements of, or be approved under, Part 21.
- 2.1.3 This AC provides guidance for the acceptance or approval of these items.

2.2 Part 133 - Australian air transport operations

- 2.2.1 Part 133 provides the requirements for an operator to be approved for medical transport operations using rotorcraft. Medical transport operations may include the winching of persons into the rotorcraft from a medical transport operating site.

2.3 Part 138 - Aerial Work operations

- 2.3.1 Part 138 provides the requirements for an operator to be approved for aerial work operations. Aerial work consists of three categories of operation:
 - Category 1:
 - an external load operation
 - Category 2:
 - a dispensing operation
 - Category 3:
 - a task specialist operation.
- 2.3.2 For the purposes of Part 138, an external load operation means carrying or towing a load (including a person) outside a rotorcraft in flight and includes training for such an operation.
- 2.3.3 A SAR operation is an aerial work operation approved under Part 138 whose primary purpose is a combined SAR and is not a medical transport operation or winching as part of an air transport operation.

2.3.4 Classes of external loads for aerial work

- 2.3.5 Part 138 introduces a class system for rotorcraft external loads which is similar to international classifications. The following is provided in full detail in the Part 138 MOS.
- 2.3.6 A **Class A** external load does not include a person. The load is external to the rotorcraft, is not carried in an approved cargo rack, or in a sealed receptacle, is not jettisonable, cannot move freely and does not extend below the rotorcraft's landing gear.

An example of an operation involving a Class A external load is when a load is carried on a platform from which the load has the potential to fall off if it is not properly secured.

- 2.3.7 A **Class B** external load does not include a person. The load is external to the rotorcraft, jettisonable, carried above or below the rotorcraft's landing gear by using the rotorcraft's belly hook or winch, lifted off land, water or off a structure that is on land or water, carried in flight and set down on land or water, or on a structure that is on land or water.

An example of an operation involving a Class B external load is the picking up and carriage, using a sling attached to the belly hook of a rotorcraft, of an air-conditioning unit that is then set down on the roof of a tall building.

- 2.3.8 A **Class C** external load does not include a person. The load is external to the rotorcraft, jettisonable, part of which remains in contact with land or water during the lifting.

An example of an operation involving a Class C external load is powerline stringing.

- 2.3.9 A **Class D** external load is a person(s). The load is carried external to the rotorcraft in an external load operation.

Examples of operations involving a Class D external loads are:

- winching a person on board from land or water
- winching a person already aboard onto land or into the water
- positioning a person on or at a transmission wire using a fixed line attached to the rotorcraft's belly hook
- carrying a person on a platform.

- 2.3.10 A **Class E** external load does not include a person. Class E external load means a load, carried by an aeroplane in an external load operation. Class E is not applicable to rotorcraft.

An example of an operation involving a Class E external load is a banner towing operation by an aeroplane.

2.4 Manual of Standards (Parts 133 and 138)

- 2.4.1 The MOS for Part 133 and Part 138 requires the HEC equipment, fittings, lines, safety harnesses, restraint straps and rescue harnesses must meet the requirements of, or be approved under, Part 21.
- 2.4.2 Part 21 approvals for HEC equipment are provided under regulation 21.305 of CASR. This provides a range of pathways, the requirements of which are explained in the following chapters.

2.5 The external load system for HEC operations

- 2.5.1 The external load system consists of the rotorcraft and the equipment that is approved and capable of HEC operations. This system should be considered as two distinct sub-systems:
- a. The rotorcraft equipment that is installed at production or modified to an approved design that has shown compliance with the applicable airworthiness standards and deemed capable for HEC operations.
 - b. The Personal Carrying Device System (PCDS) which consists of all items that attach to the rotorcraft equipment (baskets, harnesses, ropes, carabiners, etc).
- 2.5.2 A rotorcraft and its equipment may be approved as capable for HEC operations. Approved PCDS for use with that rotorcraft will be stated in the Rotorcraft Flight Manual (RFM) as issued by the rotorcraft manufacturer or as part of an approved modification supplement. This would constitute approval of the entire External Load System (i.e. Rotorcraft and PCDS combination).
- 2.5.3 A PCDS may be approved by CASA against minimum performance standards for its design and authorised for manufacture as a standalone article. Approval of a PCDS as a standalone article is not an approval of the External Load System. Any PCDS that meets the requirements of Part 21 or is approved by CASA must be assessed for compatibility with the aircraft as part of an external load system and approved accordingly (or be covered by the existing approved design of the aircraft). Such an approval will involve an STC or other established method for aircraft certification or modification and may be performed by CASA, an appropriate Part 21 Approved Design Organisation or authorised person.

2.6 Design standards for the external load system for HEC operations

- 2.6.1 The airworthiness standards for a rotorcraft in the normal category are the airworthiness standards set out in Part 27 of chapter 14 of the Code of Federal Regulations (CFR) or the airworthiness standards set out in EASA CS-27 with the changes provided under Part 27.
- 2.6.2 The airworthiness standards for a rotorcraft in the transport category are the airworthiness standards set out in Part 29 of chapter 14 of the Code of Federal Regulations (CFR) or the airworthiness standards set out in EASA CS-29 with the changes provided under Part 29.
- 2.6.3 An application to CASA for an STC to modify a rotorcraft for external load operations requires the applicant to nominate the certification basis for the modification. The certification basis for the modification must be prior agreed to by CASA and is typically the same as the certification basis listed in the type certificate (TC) for the rotorcraft.
- 2.6.4 The specific airworthiness requirements of rotorcraft capable of external load operations is 27.865 or 29.865 of either the FAR § or CS requirements identified above. The relevant guidance material for these provisions should be consulted for full detail.

3 Approval of rotorcraft external load systems

3.1 General

- 3.1.1 As discussed in section 2.5, the external load system should be considered as two distinct sub-systems:
- i. The rotorcraft equipment that is installed at production or modified to an approved design; and
 - ii. The Personal Carrying Device System (PCDS).
- 3.1.2 General guidance is currently published on the approval of rotorcraft equipment and the modification of Australian aircraft (item (i) above). To avoid duplication, this section provides references to the pertinent subject matter.
- 3.1.3 Guidance on the approval of PCDS (item (ii) above) follows in section 4 of this AC.

3.2 Guidance Material

- 3.2.1 FAA Advisory Circulars 27.865 and 29.865 provide guidance for the airworthiness design requirements of external load systems.
- 3.2.2 EASA Acceptable Means of Compliance (AMC) for EASA CS-27 and CS-29 also provides valuable guidance relating to design criteria in relation to [European Certification Specification \(CS\)](#) 27.865 and 29.865.
- 3.2.3 CASA Advisory Circular AC 21-08 Approval of modification and repair designs under Subpart 21.M provides guidance on design changes to Australian aircraft that must be approved under Part 21.
- 3.2.4 CASA Advisory Circular AC 21-12 Classification of design changes provides guidance on the classification of an aircraft modification as either major or minor. Modifications may be further classified as substantial, significant, or not significant.
- 3.2.5 CASA Advisory Circular AC 21-15 Supplemental Type Certificates provides guidance on modifying aircraft using the STC process.
- 3.2.6 CASA Advisory Circular AC 21-27 Manufacturing approval - overview.

4 Requirements for the approval of PCDS

4.1 General

- 4.1.1 The purpose of the PCDS is to provide a minimum acceptable level of safety for personnel being transported outside the rotorcraft. The personnel being transported may be healthy or injured, conscious or unconscious.
- 4.1.2 The External Load System refers to the entire installation related to the carriage of HEC loads that include not only the hoist or hook, but also the structural provisions, release systems, articles attached below the hook and any miscellaneous items such as ropes and carabiners.
- 4.1.3 The Personnel Carrying Device Systems (PCDS) is that part of the HEC external load system that attaches to the hook, hoist or aircraft structure and is not part of the permanent aircraft configuration.
- 4.1.4 The manufacture of articles such as harnesses and baskets may be authorised by CASA when the design is shown to meet minimum performance standards and a formal manufacturing system demonstrably ensures the article conforms to the approved design.
- 4.1.5 The authorisation to manufacture an article as a standalone item does not consider the operational type or capability of the rotorcraft and as such does not include the approval to install the article. The article may only be used as part of an external load system if the installation is covered by an approved design for the aircraft. For new articles this may require assessment and approval by CASA, a Part 21 Approved Design Organisation or authorised persons.
- 4.1.6 Miscellaneous items may be used when they meet the requirements of Part 21. Items must be designed and manufactured to a standard accepted by the Part 21 MOS or approved by CASA under Part 21.
- 4.1.7 In cases where it can be shown by an established safety assessment process that item failures have no effect on the safety of the aircraft or persons that are HEC, such items may be approved for use without a Part 21 manufacturing authorisation.

4.2 Design criteria for PCDS

- 4.2.1.1 FAA Advisory Circular 27.865 and 29.865 provide guidance for design criteria for PCDS in relation to the requirements of FAR § 27.865(c)(2) and 29.865(c)(2). Refer to section (d)(10) of FAA AC 27/29.865B.
- 4.2.1.2 EASA Acceptable Means of Compliance (AMC) for EASA CS-27 and CS-29 also provides valuable guidance relating to design criteria in relation to CS 27.865 and 29.865.

4.3 Performance Standards

- 4.3.1 When using the design criteria provided in the guidance material referenced above, standards for performance against these criteria should be referenced or developed to facilitate the showing of compliance with regulation FAR § and CS 27.865 or 29.865.
- 4.3.2 As an example, one of the design criteria from FAA AC 29.865 states:
"Any fabric used should be durable and should be at least flame-resistant."
- 4.3.3 This criterion is a useful guide however definition around what is "durable" and the acceptance of what is "flame-resistant" needs context and a suitable standard will provide this detail required for assessment of the design.
- 4.3.4 A suitable performance standard may be a specification that is established, published, and maintained by an organisation that sets consensus standards for products such as Standards Australia.
- 4.3.5 Government agencies may also publish suitable standards such as defence standards issued by the United States (MIL Specs).
- 4.3.6 Unless specified as an approved standard for a specific purpose in the Part 21 MOS, the use and suitability of a standard in support of a design will be subject to assessment as part of the article design approval process.
- 4.3.7 If a PCDS is to be approved against an accepted standard, the standard must cover the full range of intended use. If the PCDS is intended to be used for external load operations and to be installed in the aircraft for use inside the aircraft, then the performance specifications of that approved PCDS will need to show compliance against the relevant aircraft airworthiness standard for the aircraft. For example, if a PCDS is intended to be a rescue litter and occupant restraint combination that will be used to winch a person to an aircraft and will be installed in a Part 29 rotorcraft, it must show compliance against the applicable Part 29 standards, such as regulation 29.853 of CASR for flame resistance for installation approval.
- 4.3.8 An applicant may propose their own performance standard; however the rationale of the development must be fully justified against the need for a minimum acceptable level of safety.

4.4 Safety analysis

- 4.4.1 Any failure mode of the external load system, including the PCDS which may lead to a loss of the HEC should have a failure condition severity classified as catastrophic. A safety analysis must be performed to show that the failure condition occurrences relating to the design features are extremely improbable.
- 4.4.1.1 The safety assessment of the PCDS should be demonstrated by completion and approval of the at least the following:
- A functional hazard assessment or equivalent method to determine the hazard severity of failures associated with the PCDS.

- A fault tree analysis or equivalent method to verify the hazard classification of the FHA has been met.
- A system safety assessment.

4.4.2 Acceptable system safety standards include:

- SAE International ARP4754/ARP4761
- EASA CS-25 AMC 25.1309
- FAA AC 27.1309 (found in FAA AC 27-1)
- FAA AC 29.1309 (found in FAA AC 29-2).

4.5 Fatigue

4.5.1 As part of the external load system, the PCDS should be reviewed on a component-by-component basis to determine which, if any, components are fatigue critical. These components should be analysed or tested to ensure that their fatigue life limits are properly determined. The limits should be recorded in the airworthiness limitation section of the maintenance manual or an equivalent document.

4.6 Technical data, supply, etc.

4.6.1 In addition to the performance standards for the basic design, criteria should be established for at least the following as part of the application:

- Technical data, which may include technical drawings, test reports, operating limitations, life limitations, functional testing, part marking, etc.
- Supply requirements, which may include user manuals, installation instructions, operating instructions, maintenance instructions, etc.

4.7 Documentation

4.7.1.1 The PCDS as a system should be supplied with appropriate documentation to support the evidence of the method of certification and to assure the article is used in accordance with its approved design and continues to meet the minimum performance standards in service.

4.7.1.2 Documentation requirements for the PCDS will be dependent on the item(s) that make up the system. The following is a non-exhaustive list of documentation that may be required:

- the installation instructions for the device
- the operating instructions and limitations for the device
- maintenance instructions for the device, including the following:
 - o procedures to address issues, including cleaning off contaminants that are unique to the operating environment for the device (such as salt water, hydraulic and engine oil).
 - o retirement criteria for the device based on the component condition.

- o a schedule of periodic inspections to ensure the continued safety of the device throughout its operational life.

4.8 Authorisation for the manufacture of articles

- 4.8.1 Articles manufactured under a provision of Part 21 receive an authorisation to manufacture. The article produced under that authorisation is an article approved under Part 21 and as such is eligible for use in a Part 133 or Part 138 operation.
- 4.8.2 For an article to receive an authorisation for manufacture from CASA, the following minimum criteria must be established.

4.8.3 Manufacturing quality system

- 4.8.3.1 All Part 21 manufacturing authorisations require the applicant to have a quality system that ensures each article is produced to its approved design and is in a condition for safe operation. The proposed quality system must be shown to address the requirements covered by regulations 21.143 and 21.144 of CASR. CASA AC 21-27 provides further guidance on this matter.

4.8.4 Minor design changes

- 4.8.4.1 The authorisation holder may make minor changes to the approved design (any change other than a major change) when the procedure is documented in a quality system. This will include matters relating to the management and changing of part numbers, dash numbers, etc(for example see subregulation 21.605(3) of CASR).

4.8.5 Major design changes

- 4.8.5.1 Any design change to the PCDS that is extensive enough to require a substantially complete investigation to determine compliance with the original performance specifications is a major change and must be approved under the applicable regulation - this will generally involve application to CASA.

4.8.6 Record keeping and CASA inspection

- 4.8.6.1 Manufacturing authorisations require record keeping and include CASA inspection requirements, for example, see regulation 21.613 of CASR and regulation 21.615 of CASR respectively.

4.8.7 Revoking or suspending an approval

- 4.8.7.1 CASA may suspend or cancel a manufacturing authorisation if there are reasonable grounds to do so (see regulation 21.002C of CASR).

4.9 Commercial parts

4.9.1 General

- 4.9.1.1 PCDS may consist of items whose design is not aviation specific and are predominantly used in equivalent applications where protection from height hazards is an essential requirement (fall arrest systems). In all cases where the failure of an item within the PCDS can affect the safety of the aircraft or the HEC, the item design must be shown to meet minimum performance standards and be manufactured within an acceptable quality system that assures all items produced within that system conform to the design.
- 4.9.1.2 In cases where it can be shown by an established safety assessment process (see paragraph 4.1.7) that item failures have no effect on the safety of the aircraft or persons that are HEC, the item may be included in a Part 21 design approval without a Part 21 manufacturing authorisation.

4.9.2 Independent certification

- 4.9.2.1 Commercial items may be used as part of a PCDS in instances where the items conform to a standard that is either stated in the Part 21 MOS or is otherwise approved or accepted by CASA as for the design.
- 4.9.2.2 Such items must be certified to show conformity to the approved standard by an independent body such as evidence of an EC Type Examination Certificate or similar certification. Such items will typically state that they are "certified to" a particular standard and these items do not require a CASA manufacturing authorisation.
- 4.9.2.3 Items that are self-certified by a manufacturer are generally not eligible for use in safety related applications. A manufacturer's certificate of conformance that states "complies with" or "in accordance with" is typically an indication that these items are not independently certified products and would require specific justification and approval to be used as part of a PCDS.

4.9.3 SAR operations

- 4.9.3.1 Larger PCDS articles such as a Stokes Litter or retrieval baskets are used extensively in military operations or other SAR applications (e.g. US coast guard). It is acknowledged that for SAR applications, the requirements for articles to be certified using the same processes to that of a person that is being transported under normal conditions need not be the same for an item used for a person under critical rescue conditions.
- 4.9.3.2 Items that are designed, manufactured, and accepted for use in alternate SAR operations may be accepted and approved by CASA if the applicant can show equivalency to the CASA requirements. Things to consider as part of an application for approval based on equivalency include:
- a. An assessment of the differences between CASR requirements and that of the alternate operation.

- b. The applicant provides data that shows evidence of a manufacturing quality system that is equivalent to the requirements of regulations 21.143 and 21.144 of CASR.
 - c. The applicant provides data that shows evidence of ongoing oversight of the manufacturing quality system identified in (b) above.
 - d. The applicant provides data to show the items meet the requirements of FAR § or CS 27.865 or 29.865, including such areas as the structural capability and personnel safety features essential for external occupant safety, probability of failure and fatigue.
 - e. The applicant provides in-service failure data as part of a system that monitors the performance of the design.
 - f. The applicant provides evidence that the instructions for continuing airworthiness are effective and there is a system in place that monitors the performance of the instructions and amendments are made when required.
- 4.9.4 HEC applications that are not SAR such as power line inspections are considered normal operations and must comply with the applicable airworthiness requirements.

5 Pathways for approval of a PCDS

5.1.1 The following pathways at Figure 1 may be used for articles such as PCDS to meet the requirements of, or be approved under, Part 21 as required by the MOS Part 133 MOS and the Part 138 MOS.

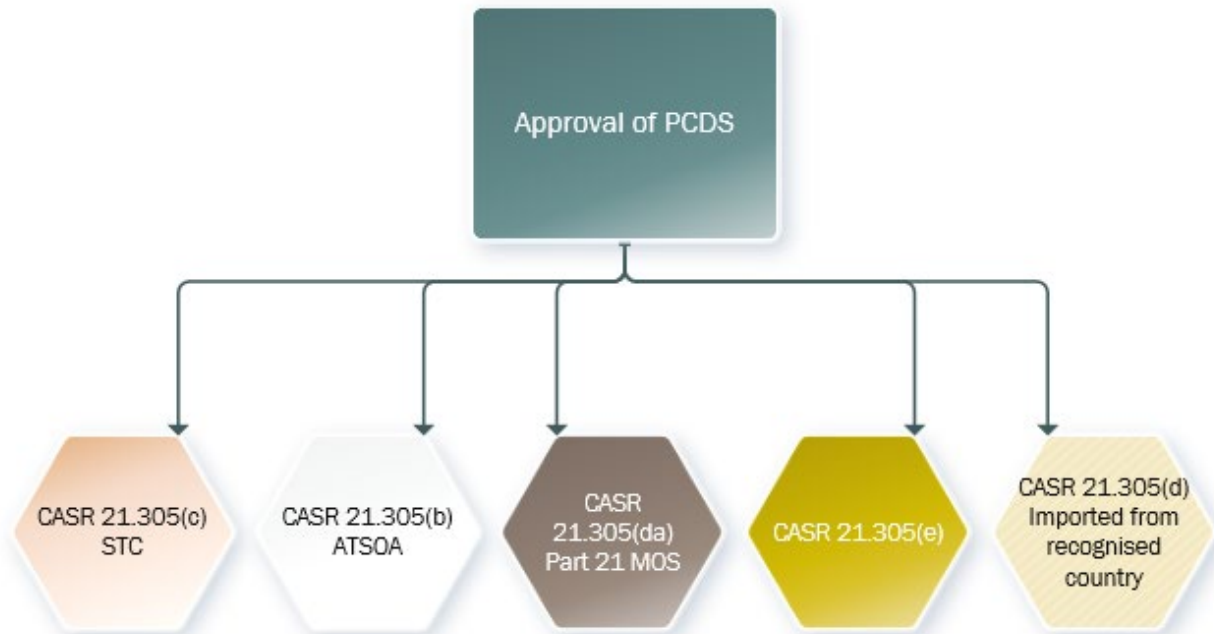


Figure 1: Pathways for approval of a PCDS

5.2 Regulation 21.305(c) Supplemental Type Certificate (STC)

5.2.1 When an aircraft is modified via STC and incorporates the installation of an approved PCDS, it is effectively added as a supplement to the equipment list of the issued type certificate. Upon satisfactory assessment of the certification basis, an STC would be issued stipulating eligible PCDS part numbers, operating limitations, Instructions for Continuing Airworthiness, and the requirements for an RFM revision.

5.2.2 In situations where the PCDS was not approved, a prospective applicant would be encouraged to pursue one of the alternate pathways listed below however, an APMA could be issued as part of the STC process. An APMA is an approval for modification or replacement part and in this application, would need to be considered as part of the modification. This approach does restrict the use of the PCDS to the issued STC and requires the same rigour of assessment and manufacture as the alternate pathways. Note that Approved Model List STCs provide for STCs to be approved for a range of aircraft.

5.2.3 An STC provides for the capability of the aircraft under certain operating conditions but does not provide operational approval. The aircraft operator will seek approval under Part 133 or 138 to operate the aircraft in its Part 21 approved configuration.

5.3 Regulation 21.305(b) Australian Technical Standard Order Authorisation (ATSOA)

- 5.3.1.1 An Australian Technical Standard Order Authorisation (ATSOA) is an authorisation to manufacture an article to a design that has been found to meet the requirements of a TSO—TSO, ETSO and ATSO.
- 5.3.1.2 A TSO, ETSO and ATSO (TSO) contains the minimum performance standards (MPS) for an article and may include requirements for a technical design standard, the need for technical data to be produced (including operating instructions and limitations), and the requirement for part marking and supply.
- 5.3.1.3 Advisory Circular 21-601 - Australian Technical Standard Order authorisation provides guidance on aspects of ATSOA.
- 5.3.1.4 CASA publishes ATSOs in the Part 21 MOS. Current ATSOs relating to external loads are:
 - a. ATSO-C1001 – Dispatcher’s restraint strap
 - b. ATSO-C1003 – Helicopter external personnel lifting devices
- 5.3.1.5 An example TSO published by the FAA in relation to external loads is:
 - a. TSO-167 - Personnel Carrying Device Systems (PCDS), also known as Human Harnesses
- 5.3.1.6 An ATSOA allows the holder to identify the article with an ATSO marking. However, an ATSOA does not confer installation authority. The installation of an article manufactured under an ATSOA must be approved separately in a manner acceptable to CASA; for example, under a design approval pursuant to Subpart 21.M, a STC or a TC.

5.4 Regulation 21.305(da) approval in a manner prescribed by Part 21 MOS

- 5.4.1 Regulation 21.305(da) provides for an article to be approved in a manner prescribed by the Part 21 MOS. A number of ATSOs are currently prescribed by the MOS and these are to be used in conjunction with an ATSOA (as described above). As an example of an approval under regulation 21.305(da), the MOS could prescribe alternate specifications that have been assessed by CASA and deemed acceptable for use.
- 5.4.2 There are currently no other specifications prescribed for this pathway other than ATSOs, but CASA may consider established alternate standards/specifications for inclusion as and when the need arises.

5.5 Regulation 21.305(e) approval

- 5.5.1 An approval provided under regulation 21.305(e) is issued through an instrument that will set out the manner approved by CASA. The instrument will stipulate the accepted Performance Standards, the manufacturing quality system, the continuing airworthiness

requirements for the product and any other condition that CASA deems necessary to establish a minimum acceptable level of safety.

- 5.5.2 In the absence of a suitable, published ATSO, TSO or ETSO (and therefore the inability to receive an ATSOA), regulation 21.305(e) provides that CASA may approve a material, part, process, or appliance in any manner already approved by CASA.
- 5.5.3 If an application for PCDS approval has been submitted to CASA and aligns with the relevant paragraphs of section 4 of this AC, CASA may approve an article under regulation 21.305(e).
- 5.5.4 It should be noted that any approval provided using regulation 21.305 (e) would be valid within Australia only and would typically not be accepted internationally, for example as part of the US bi-lateral agreement on the acceptance of manufactured parts.
- 5.5.5 However, a regulation 21.305(e) approval may be used as a precursor to a future ATSO and international acceptance.

5.6 Regulation 21.305(d) approval of imported materials, parts and appliances

- 5.6.1 Regulation 21.305(d) provides for approvals under Subpart 21.N. Within that Subpart, regulation 21.502 provides the requirements for the approval of imported materials, parts and appliances from certain recognised countries without further approval from CASA.