CIVIL AVIATION AUTHORITY
OF NEW ZEALAND

Advisory Circular
AC43-9

Revision 5

Modifications, Repairs, and the CAA 337

Xx xxxx 2022

General

Civil Aviation Authority advisory circulars (ACs) contains guidance and information about standards, practices, and procedures that the Director has found to be an **acceptable means of compliance** with the associated rules and legislation.

Consideration will be given to other methods of compliance that may be presented to the Director. When new standards, practices, or procedures are found to be acceptable they will be added to the appropriate AC.

Purpose

This AC describes an acceptable means of compliance with Civil Aviation Rules, Parts 43 *General Maintenance Rules* and 21 *Certification of Products* when applying for approval of and/or embodying modifications and repairs.

This material is intended for those persons wishing to have technical data approved and to perform modifications and repairs.

Related Rules

This AC relates specifically to Part 43 Subpart E, and Part 21 Subparts C, M, and N.

Change Notice

Revision 5 updates terminology and advice on Acceptable Technical Data (ATD) throughout.

Cancellation Notice

This AC cancels AC43-9, Rev 4, dated 4 April 2019.

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Version History

History Log

Revision No.	Effective Date	Summary of Changes
0	4 March 1997	The initial issue of this AC.
1	25 December 1997	Re-numbered this AC to AC43-9A.
2	27 April 2007	Re-numbered this AC from AC43-9A to AC43-9.
3	11 November 2013	Re-wrote this AC to account for the change to CAA 337.
4	4 April 2019	Added guidance on approved model list (AML) supplemental type certificates (STCs) under section 4 of this AC; and updated the title of Appendix A of this AC. The changes were as follows: • Change Notice updated • Cancellation Notice inserted • Version History Log inserted • Numbering system updated • New paragraph 6 (under sub-section 4.2) inserted • New title for sub-heading 6.3 inserted • Title of Appendix A amended
5	Xx xxxx 2022	Updates terminology and advice on ATD throughout

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1. Abbreviations and Definitions

The following terms are referred to in this AC and are defined in Civil Aviation Rules, Part 1 *Definitions and Abbreviations*.

Design change

Maintenance

Major modification

Major repair

Technical data

2. Introduction

This AC provides guidance to certifying engineers on:

(a) the technical data to use to embody a design change

(b) the process of applying for approval of a design change by the approval of the associated technical data

(c) determination if a modification is major or not, and

(d) completing the form CAA 337 (the CAA 337).

3. Design Changes: Modifications and Repairs

3.1 General

Part 43 *General Maintenance Rules* provides for general maintenance of an aircraft or component and includes the means to embody a design change to an aircraft.

Part 1 defines Maintenance in relation to an aircraft or aircraft component, as all work and inspections performed to ensure the continued airworthiness of the aircraft or aircraft component, and all modifications.

Part 1 defines a Repair as a design change that is intended to return the product, component, or appliance to its original, or properly modified configuration.

Part 1 defines a Design change as a change to a type design or a change to any other part of a type certificate or type acceptance certificate that, if incorporated ,would require the modification or repair of a product, its components, or an appliance.

Type certificated aircraft and products can be altered in a number of ways.

(a) **Changes to a type certificate.** These are design changes that are proposed by the type certificate holder. Part 21 Subpart D provides the process and criteria for changes to a type certificate. This type of design change is typically issued as a service bulletin.

(b) **Supplemental type certificates (STC).** These are design changes that are (usually but not always) developed by someone other than the type certificate holder. STCs can be proposed by anyone and would typically include those proposals that form a kit to be sold for incorporation by third parties into a type-certificated product. Part 21 Subpart E provides the requirements for approval of an STC, including the responsibilities of an STC holder.

(c) **Repairs.** These are a design change required to rectify a defect, usually on an individual aircraft, and often structural. A repair, while resulting in a change to the type design, is intended to restore the product to the same operational capability as before. For example: by the addition of a skin doubler and fasteners to restore strength to a cracked panel, or by a bush in a worn bearing component. Part 21 Subpart M states that repairs which are not approved under the type certificate or type acceptance certificate are to be treated as design change to be approved in accordance with Part 21 Subparts C, D and E.

(d) **Modifications.** These are design changes that are not changes to type certificates nor supplemental type certificates. (Although the term modification is often used generally by industry to describe any design change.) Like repairs, modifications are normally individual changes, although under specific conditions modifications can be duplicated on aircraft of identical make, model and modified configuration. Modifications are approved by approving the technical data in accordance with Part 21 Subpart N.

This AC discusses the approval process for modifications and repairs only. For STCs, refer to AC21-8, *Design changes – Supplemental Type Certificates*. For changes to a type certificate, consult the CAA Certification Unit .

3.2 Modification and repair process

There are two important aspects when embodying a modification or repair ~~to carrying out a design change~~ on an aircraft. Firstly, the technical data used must be Acceptable Technical Data (ATD) listed in Part 21 Appendix D, and secondly, the certifying engineer must determine if the modification or repair is major.

A major modification or repair must be inspected for conformity by an IA holder or equivalent before releasing the aircraft or component to service.

The simplified modification or repair process

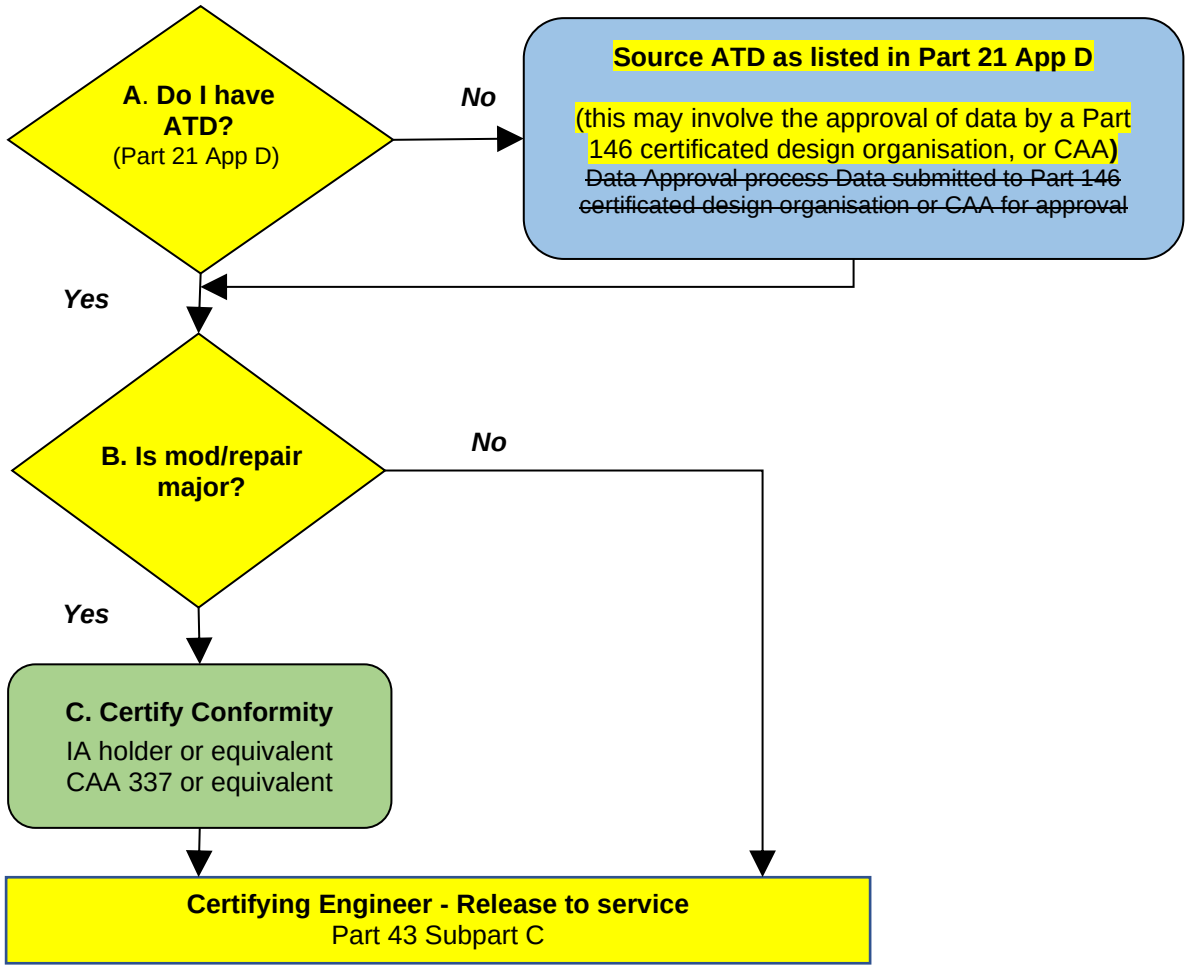

Figure 1. The Simplified Modification or Repair Process

Note: *The decisions at A. and B. are the responsibility of the certifying engineer.*

A. Acceptable Technical Data (ATD)

Rule 21.503 requires that technical data be used only if it is approved or is acceptable to the Director.

The source of the ATD to be used in a modification or repair is the prerogative of the certifying engineer.

Where ATD completely defining a modification or repair cannot be sourced, development of ATD will be required. ~~If the modification or repair is not completely defined by ATD, then,~~

~~to proceed with the embodiment of the modification, development and approval of data is required.~~

The approval of technical data (Part 21 Subpart N) may be done by the Director, or a certificated Part 146 Design Organisation who employs a senior person holding a delegation from the Director to approve modifications and repairs.

ATD and the technical data approval process are discussed further in section 4 of this AC.

Note: *Technical data developed by the OEM on request (such as a repair scheme) is considered ATD if it has been approved by an appropriate person within the organisation.*

B. Is the modification or repair major?

The responsibility for determining whether the modification or repair is major, rests with the certifying engineer carrying out the maintenance. When a modification or repair is determined to be major, an IA holder or a person authorised by a certificated Part 145 Maintenance Organisation must certify conformity of the modification or repair to acceptable technical data. The certification for conformity must take place prior to a release to service being certified. It would be prudent for the certifying engineer to engage with an IA or authorisation holder before commencing a modification or repair ~~maintenance~~ where a conformity inspection will be required, especially in cases where completed work will become inaccessible or obscured.

C. CAA 337: Approval of data / conformity certificate

This AC discusses the CAA 337, but the requirements should be read across to those certificated Part 145 Maintenance Organisation or certificated Part 146 Design Organisations, using other forms, for conformity or approval respectively.

There are two separate purposes for which the CAA 337 can be used. Firstly, Part 21 specifies the use of the CAA 337 for the approval of technical data. Secondly, Part 43 Subpart E specifies the use of the CAA 337 to certify the inspection of a major modification or repair for conformity with ATD.

Inspection for conformity is also discussed in AC43-1, *Aircraft Maintenance*, Chapter 5.

4. Technical Data

4.1 Acceptable Technical Data (ATD)

For any design change, there must be technical data which completely defines the modification or repair ~~design change~~. Rule 21.503(a) requires that technical data must only be used if it is approved or acceptable to the Director.

Part 21 Appendix D lists technical data which the Director has found to be acceptable for use in New Zealand. This list basically includes:

(a) technical data that has been approved by the Director

(b) technical data that other people have approved and that the Director has found acceptable to use, and

(c) technical data that the Director has reviewed and found acceptable to use.

To have something *approved* and to have something *accepted* both require the presentation of that data to the Director.

Part 21 Appendix D places conditions on the use of acceptable data that include:

(a) the data must be appropriate to the product, component, or appliance, and directly applicable to the work being carried out

(b) for a foreign supplemental type certificate or supplemental type approval the data must:

(1) not introduce a complete new flight manual (because the flight manual is referenced on the airworthiness certificate)

(2) not re-designate the aircraft type (because the Director would need to amend the aircraft register and the aircraft documents would need to be re-issued)

(3) reference the particular foreign type certificate accepted by the Director. (This is to ensure the same certification basis was used for approval of the STC. This also means having the same certification category. For example: an STC approved in the restricted category would not be acceptable technical data for an aircraft which had been type accepted in the standard category).

Note: *STCs which do not meet the above conditions, or which are from a country not listed in Appendix D, may still be eligible for acceptance under rule 21.503(a). An application should be made to the Director for review and acceptance of the data.*

(c) the installer must have ~~having~~ the written permission of the supplemental type certificate or approval holder. (So that the holder can contact the installer on matters of continuing airworthiness).

(d) the data provided by the manufacturer of a component must not conflict with data provided by the manufacturer of the product or assembly of which the component is to form a part.

The certifying engineer carrying out the modification or repair is responsible for determining that they have ATD, detailing all necessary information for the modifications or

repair undertaken. This means that the entire modification or repair is addressed in the ATD and that no part of any modification or repair is carried out without reference to the ATD. There must be no conflict between the data used and the manufacturer's ICA.

Often a single source of ATD will not provide all the information necessary and the certifying engineer will need to consult additional ATD references to complete the modification or repair. For example, a manufacturer may provide the materials and dimensions of a repair in the AMM and make reference to the United Stated Federal Aviation Authority (FAA) AC43-13.1B for the necessary methods and techniques to be used in completing the repair. Certifying engineers who chose to reference several sources of repair data must ensure that each reference used satisfies the conditions of Part 21 Appendix D.

It is the responsibility of the certifying engineer to determine the appropriateness and applicability of the ATD used for a modification or repair. Not all ATD is necessarily in a form that is able to be used immediately. For example, AC43-12, *Non-aeronautical lead acid batteries*, is listed in Part 21 Appendix D as ATD and states that the use of non-aeronautical lead acid batteries is acceptable. Before modifying an aircraft by installing a non-aeronautical battery however, the ATD describing the actual installation must be sourced.

Another example where the certifying engineer must determine appropriateness of ATD is the installation of electrical equipment where that equipment has the possibility of overloading the aircraft electrical system. For all design changes which result in a change in electrical load, the certifying engineer must ensure that an electrical load analysis (ELA) is conducted to verify the capacity of the aircraft's electrical system. Even a small increase in electrical load (1 Amp for example) may invalidate an aircraft's emergency battery time.

ATD for modifications is often subject to applicability requirements. For example, approved model list (AML) STCs are a class of STC issued by the FAA that approve a particular modification often across a large range of different makes and models of aircraft. Since these STCs are based on the type design configuration, situations may arise where an aircraft configuration may have been altered in service by other modifications which may mean that the STC is not compatible with the current aircraft configuration. In these situations, the installation instructions may not provide sufficient detail for the work to proceed, or it may not be possible to fully embody all aspects of the STC. In these cases, the installation must not proceed until the STC has been revised or technical data for the differences has been approved.

Subject to the conditions on the use of technical data, the following are ATD:

(a) Type certificate data sheets.

(b) Foreign type certificate data sheets used for the issue of a type acceptance certificate.

(c) Type design data for type certificated products. For example: approved drawings issued by the type certificate holder.

(d) Design change data that support a design change approved by the means specified in rule 21.73. (That is, modifications approved under Part 21, Subpart N, STCs approved under Part 21 Subpart E, changes to a type certificate approved under Part 21 Subpart B, or data included in an airworthiness directive issued under Part 39).

(e) Data approved by the Director under rule 21.505 on a CAA 337.

(f) Data provided by the Director in an AC.

(g) Airworthiness directives that give specific instructions for modification or repair.

(h) STCs issued by ~~the~~:

(1) the United States of America Federal Aviation Administration (FAA)

(2) the Australian Civil Aviation Safety Authority (CASA), or

(3) Transport Canada.

(i) Supplemental type approvals issued by Transport Canada.

(j) Data giving specific instructions for modification or repair contained in a maintenance manual, repair manual, overhaul manual, continuing airworthiness document, service bulletin, or an equivalent provided by the manufacturer of the product for which it is to be used and which is listed in the type certificate or by reference in the type acceptance certificate, that is data that has been approved for use by the type certificate holder. This includes data provided by the manufacturer of a component of a product where that component is a part of the approved type design of the product.

(k) FAA AC43.13-1B, issued by the FAA

(l) Data included in, and specific to the category of, an airworthiness certificate.

(m) Data that has been accepted by the Director under rule 21.503(a) by issue of a letter of acceptance (for example: EASA supplemental type certificates which have been individually accepted by the Director).
https://www.aviation.govt.nz/assets/aircraft/acceptable-technical-data.pdf

(n) Data that has been accepted by the Director under rule 21.503(a) by issue of notice given in a type acceptance report. For example: acceptance of EASA and FAA STCs for the Bell 429 series when the type acceptance is based on a Transport Canada type certificate. A similar notice is listed in the AS350 type acceptance report.

Note: *Data issued by a manufacturer can only be considered ATD if it has been approved by an appropriate person within the organisation. For example, a signed and approved drawing would be considered part of the approved type design, as would a formal modification bulletin. By contrast, a letter from a representative of the sales support department would not. Equally, a letter from a technical representative of a manufacturer cannot be considered ATD unless that individual holds design organisation authorisation, or the international equivalent.*

4.2 FAA AC43-13.1B

FAA AC43.13-1B is detailed in Part 21 Appendix D as ATD. It contains methods, techniques, and practices acceptable to the Director for the inspection and repair of non-pressurised areas of civil aircraft.

Throughout the document there are limitations and requirements for use (including on the front page), which must be followed.

It is the responsibility of the certifying engineer to ensure that repair data from FAA AC43.13-1B is applicable and appropriate.

One of the limitations on the use of FAA AC43.13-1B is that it may only be used when no manufacturer's data exists. This requirement calls for the certifying engineer to assess the aircraft or component manufacturer's data to determine if repair data exists. Only when no manufacturer's data exists can FAA AC43.13-1B be used. The certifying engineer must have access to the applicable manufacturer's data in order to make this assessment, meaning that FAA AC43,13-1B cannot be used as a substitute for a data subscription.

FAA AC43.13-1B data cannot be used if it contradicts the manufacturer's data. For example, if manufacturer's data states that a component must not be weld repaired, it is not appropriate for an engineer to use the data in FAA AC43-13.1B to make a weld repair.

Major repairs

FAA AC43-13.1B states that "This data generally pertains to minor repairs. The repairs identified in this AC may only be used as a basis for FAA approval for major repairs".

This means that an engineer who wants to carry out a major repair using any of the repairs within FAA AC43.13-1B must first seek approval of the data from an appropriate certificated design organisation.

For major repairs where the manufacturer's ICA or other applicable ATD refers to a section of FAA AC43.13-1B, certifying engineers may refer to the specified reference in FAA AC43.13-1B to complete the repair.

4.3 Approval of technical data

Modification or repair data may be developed by any person, however, the data must be reviewed and approved by either the Director or a certificated Part 146 Design Organisation before being used. The data developer should consult with the approving organisation at an early stage to ensure the data will be suitable for approval and use. Whilst the Director can approve data, for other than very basic modifications or repairs, it is recommended that a certificated Part 146 *Design Organisation* be contracted to develop, show compliance and approve the technical data based upon the customer's requirements.

Note: *The Director will only accept applications to approve technical data for minor modifications or repairs which do not require any flight testing or compliance inspections, and for which the documentation is complete. For all applications, a minimum application period of 60 days will apply prior to CAA reviewing the application. Alternatively, the applicant can seek a certificated Part 146 Design Organisation for the review and approval of the technical data.*

Development of data

As the modification is developed the assembled technical data forms the modification or repair package. This package includes descriptive data, compliance data, operating and maintenance data and any other data needed to support the embodiment of the modification.

Descriptive data, such as manufacturing drawings and installation instructions, is required to be sufficient for the manufacture of parts and the embodiment of the modification. If the modification/repair is limited to a single installation the descriptive data may be less formal but must still completely define the design change (for example by marked-up photographs).

Compliance data, such as engineering reports, load analyses and testing results, refers to data that shows the design change is compliant with the applicable airworthiness design standards. This data is generally prepared by the certificated Part 146 Design Organisation.

Operating data, such as flight manual supplements, weight and balance changes, and instructions for continued airworthiness, is required to ensure the safe operation of the product with the design change embodied.

The Director or a certificated Part 146 Design Organisation may certify the approval of technical data on a 337 (in Block 6).

Rule 21.81 states that the approval of a modification is by the approval of the technical data. This reinforces the fact that the technical data itself is approved, not the embodiment of that modification/repair.

In most cases approvals will be for a single installation in a product. However, an approval may be granted which allows duplication of the modification/repair on other identical aircraft makes and models, providing it is not major and the data presented with the CAA 337 is in sufficient detail to ensure accurate and repeatable installation. A major modification which is to be duplicated will typically be subject to approval as an STC.

Note: *For the approval of a major design change or for acceptance by a foreign regulatory authority, a supplemental type certificate (STC) would generally be necessary. Part 21 Subpart E and AC21-8 cover STCs in more detail.*

Approval will be based upon the modification package meeting the applicable airworthiness requirements. Part 21 requires compliance with these standards, and other airworthiness requirements, to be indicated by a statement of compliance issued by a certificated Part 146 *Design Organisation* or the Director. The approving person will consider all aspects of the proposal's design, its application, and its possible effects. A person approving a design may indicate on the CAA 337, in their opinion, whether the modification or repair is classified as a major modification, or repair, or not. This opinion may serve as guidance, but the responsibility for determination sits with the certifying engineer carrying out the modification or repair.

Proprietary information

The actual approval certificate of a modification is publicly available information because it is an aviation document defined by the Civil Aviation Act 1990. By contrast, in any application to the Director for modification approval, the technical data is treated as proprietary information.

Persons submitting technical data on the CAA 337 should ensure that information they consider to be commercially sensitive is only listed on and attached to, rather than entered on, the CAA 337.

For any modification or repair which has been approved for multiple installations, the CAA 337 standard wording requires the installer to have the permission of the owner of the design approval.

5. Major Modifications/Repairs

Once ATD is available, one of the steps in the embodiment of that modification or repair is to decide if it is classified as major. This involves an assessment by the certifying engineer of its potential to affect the safety of the modified aircraft.

CAA 337 block 7 contains a check box where the data approver can record their recommendation as to whether the embodiment of the modification or repair should be considered major. It is for the certifying engineer to make the actual determination of major/not major based on their own assessment and this may differ from the recommendation on the CAA 337. Where a certifying engineer disagrees with a recommendation in block 7, they should fully record the reason for this disagreement on the CAA 337.

In respect of the modification or repair, the embodiment should be assessed for its potential to cause:

(a) structural collapse

(b) loss of control

(c) failure of motive power

(d) unintentional operation of, or inability to operate, any systems or equipment essential to the safety or operational function of the aircraft

(e) incapacitating injury to any occupant, and/or

(f) unacceptable unserviceability or maintainability.

In cases where the modification or repair is not classified as major, a conformity certification is not required, and release-to-service is recorded in the maintenance records. If the ATD used in the modification or repair was approved on a CAA 337, it should be included in the maintenance records.

Appendix A to this AC provides examples of modifications that may be considered to be major.

6. The CAA 337: Instructions for Use

6.1 General

The CAA 337 has two primary functions:

(a) **Technical data approval.** Rule 21.81 requires modifications to be approved by the approval of the technical data in accordance with rule 21.505 which specifies the use of the CAA 337.

(b) **Conformity certification.** Part 43 Subpart E requires that major modifications and major repairs be certified for conformity by an IA holder or a person authorised by a certificated Part 145 Maintenance Organisation. The IA holder will inspect major repairs or major modifications for conformity to the applicable technical data. The IA holder should ensure that the applicable technical data is approved or acceptable.

The CAA 337 may be used for either, or both purposes above. For example, where the certifying engineer determines that they have ATD for the mod or repair, the data approval section is not required. If the certifying engineer determines that they do not have ATD and the mod or repair is not major (no conformity certification required), the CAA 337 may be used to record the approval of ATD by a Certificated Design Organisation.

Technical Data	Possible Effect	CAA 337 Purpose
Acceptable	Major	Conformity certification
Acceptable	Not major	CAA 337 not required
Not acceptable	Major	Technical data approval and conformity certification
Not acceptable	Not major	Technical data approval

Once complete, the CAA 337 provides owners and operators with a record of the details and approval of major modifications and major repairs and provides the CAA with a copy of the details. If separate CAA 337 forms have been used to approve the data and certify conformity, both forms must be retained as aircraft records. A certificated Part 146 Design Organisation and a certificated Part 145 Maintenance Organisation may use documents acceptable to the Director other than the CAA 337. They may also use a combination of the CAA 337 and their own form.

6.2 Process

If there is no acceptable data, or the acceptable data is not applicable to the work being carried out, a CAA 337 will need to be raised and submitted along with the proposed data for approval. The descriptive, compliance, and other data may be entered on, or preferably contained in other documents which are referenced on the CAA 337. The technical data and the CAA 337 approval certificate comprise the modification package or repair scheme.

The data must be approved by the Director or a senior person employed by a certificated Part 146 Design Organisation which has been delegated the power to approve design changes. An IA holder cannot approve data. The approving person will assess the content of the modification package and, depending on the requirements of the originator and the detail of the package, approve the technical data for embodiment on one or more aircraft.

The approving person may also suggest whether, in their opinion, the modification or repair constitutes a major modification or major repair.

Once the technical data has been approved, the person who is certifying the modification/repair for release-to-service should determine whether the maintenance is major or not.

The certifying engineer who embodies a modification or repair should ensure that:

(a) the aircraft complies with the applicable airworthiness requirements and the modification or repair does not conflict with other installations

(b) any flight manual supplement is added to the aircraft flight manual, and

(c) the proper aircraft maintenance record entries have been made and that the weight and balance data, electrical load analysis and equipment list have been revised, when appropriate.

CAA 337 instructions for completion

CAA 337 contains instructions for use, and advice. Instructions for submitting a copy (including the address) to CAA are also contained on the form.

The certificated Part 146 Design Organisation is responsible for ensuring a copy of the CAA 337 is:

(a) forwarded to the CAA within 28 days of the design change being approved.

The IA holder certifying conformity is responsible for ensuring a copy of the CAA 337 is:

~~(a)~~ forwarded to the CAA within 7 days of the work being inspected ~~and,~~

(b) attached to the engine/propeller/component if not installed, and

(c) given to the aircraft owner to form part of the aircraft maintenance records after installation.

The person certifying release-to-service is responsible for making the proper entry in the aircraft maintenance records referencing the CAA 337.

6.3 CAA 337 block by block instructions

CAA 337 Block	Approval of Technical Data	Conformity of Major Modification or Major Repair
Design change Reference/Title	Enter a unique identifying number and short title specified by the applicant.	Enter the design change reference of the technical data to be used for conformity.
1. Aircraft	Complete details of the aircraft applicability. ***Note:*** *This can be one or more aircraft of the same make and model. For modifications that can be duplicated, the serial number and registration fields can be left blank.*	Complete details of the aircraft that the modification/repair is installed on. In the case of mods applicable to more than 1 aircraft, complete a separate CAA 337 for each aircraft and clearly identify the applicable aircraft registration/serial no. ***Note:*** *When a major modification/repair is made to a component not fitted to the aircraft, the serial number and registration sections of this block will be left blank.*
2. Applicant	Complete details of the organisation or person applying for approval of the modification/repair data. ***Note:*** *The CAA 337 does not constitute commercial or intellectual property ownership. This should be dealt with separately by the parties involved.*	
3. Unit Identification	Where an engine, propeller, or component is to be modified or repaired, enter the details of the item. The CAA 337 remains with the component until such time as the component is installed on an aircraft. ***Note:*** *The person installing the component should then give a copy of the CAA 337 to the aircraft owner to be entered in the aircraft maintenance records and make an entry in the aircraft maintenance records making reference to the CAA 337 and file a copy of the CAA 337 with those records.*	
4. Type of Action	Identify in the appropriate column if the component is modified or repaired.	

CAA 337 Block	Approval of Technical Data	Conformity of Major Modification or Major Repair
5. Technical Data Classification	Tick the check box that states the technical data '*requires approval and I apply for approval*' and fill out the name of the person who can be contacted for further details on the application (that is modification owner).	Check Part 21 Appendix D to make sure the modification or repair data to be used, as detailed in block 8, is acceptable technical data and tick the check box that states the data '*is acceptable technical data*'. If not, the data will require approval by a certificated Part *146* Design Organisation or the CAA prior to signing for conformity. Fill out the name of the person who can be contacted for further details, that is, the certifying engineer who determined that the data was ATD.
6. Application for Approval of Technical Data	The applicant must fill this section out with details of any substantiating data such as stress analyses, test reports, sketches, or photographs if available. Before the approval of any new technical data can be completed the data must be assessed for compliance with airworthiness design standards. The issue of a statement of compliance indicates successful completion of this assessment. If a certificated Part 146 Design Organisation is responsible for the compliance data, a reference to the compliance reports and the statement of compliance should be listed here.	N/A – Do not complete.

CAA 337 Block	Approval of Technical Data	Conformity of Major Modification or Major Repair
7. Approval of Technical Data	Only the CAA or a Part 146 Design Delegation Holder (DDH) can fill out this section. The person approving the data will indicate in this block: - whether the modification or repair is appropriate for one aircraft only - can be applied to identical aircraft. ***Note:*** *The original applicant for design approval must give written approval to the installer. This is required to ensure that a relationship is established between the design approval holder and installer. This relationship should include full disclosure of all required technical data and recording of installers for tracking of continued airworthiness.* - the modification or repair is major or not. ***Note****: This determination is not mandatory and only serves as advice to the installer on the need for a conformity inspection.* The relevant checkboxes should be ticked and preferably lines should be put through the options that are not ticked.	Do not complete this section but if the form was also used for data approval, check to see whether, in the approver's opinion, the modification or repair is major or not. It is still the certifying engineer's responsibility to determine if the repair or modification is major.

CAA 337 Block	Approval of Technical Data	Conformity of Major Modification or Major Repair
8. Technical Data **Technical Data List and Description of Changes**	The applicant must enter a complete list of the data that requires approval, including the specific revision number/date. The certificated Part 146 Design Organisation or CAA may add to this list if further data is deemed necessary to describe the modification or repair. The description should state the location of the modification or repair, relative to the aircraft or component.	A clear, concise and legible statement describing the work carried out to embody the design change should be entered in this block. List the acceptable technical data to be used as the basis for certifying the modification/repair, including the revision number or date. The description should state the location of the modification or repair, relative to the aircraft or component. If the modification is a radio communication or navigation modification the appropriate approval level sought should be indicated on the form. AC43-10, *Aircraft radio station - Form CAA 2129*, details equipment approval levels.
Weight and Balance Data	Where the weight and balance of the aircraft are affected, state the changes here listing parts separately if located at different moment arms. If the change is negligible state the reason why. Weight and balance changes should be recorded in the aircraft records with a reference to this specific CAA 337.	
Document Amendments	List any existing documents that require amendment as part of the modification or repair, including their revision number or date. Documents may include the Aircraft Flight Manual (AFM), Instructions for Continuing Airworthiness (ICA), Maintenance Manual, Electrical Load Analysis (ELA), Form 2129 (Radio Station Equipment), Form 2173 (Weight and Balance).	
9. Conditions of Approval	The certificated Part 146 *Design Organisation* or CAA may complete this section with any special conditions or restrictions applicable to the technical data (for example: serial number limitations).	If conditions have been completed by a certificated Part 146 *Design Organisation*, ensure that the modification/repair complies with these conditions.
10. Conformity Statement	N/A – Do not complete.	A conformity statement is only required if the modification or repair is major. The definition of major is discussed in this AC.

Appendix A – Modifications and Repairs which may be considered Major

Modifications/repairs that may be considered to be major include, but are not limited to the following:

(a) increases in gross weight or changes in the centre of gravity range

(b) changes that affect the weight and balance that have the potential to affect the handling characteristics or structural strength

(c) installation or relocation of equipment and systems or changes which may adversely affect structural integrity, flight, or ground handling characteristics of the aircraft, including:

  (1) pressurisation systems

  (2) alternate static air or pressure systems

  (3) initial or prototype installation of an automatic pilot or automatic approach system

  (4) modification of automatic pilot or automatic approach system which changes servo forces, servo rates, or any flight control or performance characteristics

  (5) relocation or change of throttle levers, flap controls, and similar items

(d) changes to non-pressurised aircraft that require cutting of metal or plywood stressed skin more than 150 mm in any direction

(e) changes that require drilling or cutting into any pressurised skin

(f) changes that require the making of additional seams in or splicing of skin sheets

(g) changes to movable control surfaces which may adversely disturb the dynamic and static balance, alter the contour, or alter the weight distribution

(h) changes in the control surface travel, control system mechanical advantage, location of control system component parts, or direction of motion of controls

(i) changes in basic dimensions or external configuration of the aircraft, such as wing and tail plan-form or incidence angles, canopy, cowlings, contour or radii, or location of wing and tail fairings

(j) changes to landing gear, such as internal parts of shock struts, length, geometry, numbers, or brakes and brake systems

(k) changes to engine cowling and baffling which may adversely affect the flow of cooling air, and changes to manifolding

(l) changes to fuel, oil, hydraulic systems which may affect the fluid flow or system operation such as:

  (1) relocation of exterior fuel vents

  (2) use of hydraulic components

(3) tube material, and fittings not previously approved

(4) use of new type fusible hydraulic plugs

(5) changes in fuel dump valves

(6) new fuel cell sealants

(7) new fuel or oil system components

(m) changes to the basic engine or propeller design controls or operating limitations

(n) changes to the engine exhaust system

(o) changes that affect carburettor air induction

(p) changes involving engine controls

(q) changes in a fixed fire extinguisher or detector system which may adversely affect the system effectiveness or reliability, including:

(1) relocation of discharge nozzle or detector units

(2) use of new or different detector components in new circuit arrangements

(3) deletion of detector units or discharge nozzles

(4) changing the extinguishing agent or decreasing the amount of extinguishing agent

(r) modifications to radio communications and navigational systems which may adversely affect reliability or airworthiness, such as:

(1) large changes to electrical loads

(2) changes involving multiple avionics equipment

(3) changes to integrated avionics systems

(4) wire antennas as may be used for ADF and HF systems

(s) changes to aircraft structure or interior of aircraft which may adversely affect evacuation of occupants:

(1) changes to personnel and cargo accommodations

(2) changes to smoke/fire detection and suppression systems in the cabin or cargo areas

(3) changes to items in the head strike paths of crew or passengers

(4) changes affecting technical standard orders (TSO) seats or seatbelts

(5) changes to the emergency oxygen system

(6) changes to the pressurisation system

(t) use of synthetic covering materials

(u) replacement of fabric covering using other than the original types of materials, fasteners, or both

(v) ceramic coatings

(w) use of synthetic resin glues

(x) new stripping or plating coatings

(y) new welding, brazing, or other processing techniques.