



**Civil Aviation Advisory  
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***This publication is only advisory. It gives the preferred method for complying with the Civil Aviation Regulations.***

***It is not the only method, but experience has shown that if you follow this method you will comply with the Civil Aviation Regulations.***

***Always read this advice in conjunction with the appropriate regulations.***

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# **Aircraft welding exams: guidelines for authorised persons conducting exams**

## **The relevant regulations and other references**

- Civil Aviation Regulation (CAR) 29A (Interpretations — welding)
- CARs 33C — 33I (Aircraft welding authorities)
- CAAP No. 33-1 (Aircraft manual welding: approvals and qualifications)

## **Who this CAAP applies to**

Anyone seeking authorisation or already authorised to conduct aircraft welding examinations.

## **Why this publication was written**

The purpose of this CAAP is:

- to give information on how to apply for appointment as an authorised person to conduct aircraft welding examinations; and
- to provide general information on how to conduct aircraft welding examinations.

## **Status of this CAAP**

This is the first CAAP to be written on the appointment of an authorised person to conduct aircraft welding examinations.

## **For further information**

Contact the CAA District Office closest to you.

### **Who can apply for authorisation to conduct aircraft welding examinations**

If you wish to conduct aircraft welding examinations you should have a demonstrated understanding and working knowledge of the welding examination requirements, the associated civil aviation regulatory requirements, responsibilities of a welding authority holder, and:

- have experience as a welding lecturer at a recognised welding training organisation, e.g., TAFE college/approved training school, or
- have experience as a welding supervisor in an approved welding organisation, or
- hold other appropriate engineering qualifications and background acceptable to the CAA.

### **How to apply for authorisation**

You should prepare a written application and send it together with the prescribed fees to your nearest CAA District Office. The application should include:

- your personal details, qualifications and experience details; and
- any documentary evidence necessary to support your claims.

The CAA will assess your capabilities to conduct the aircraft welding examinations by taking into account your application details, the facilities and equipment available to you and the assurance that you will continue to receive all information necessary for the conduct of the welding examinations.

### **Status and conditions of the authorisation**

#### **THE INSTRUMENT OF APPOINTMENT**

If your appointment is approved, you will be issued with an *Instrument of Appointment* and an *Identity Card*. The Instrument of Appointment will contain a Schedule that sets out the conditions attached to exercising your authorisation.

#### **CONDITIONS OF APPOINTMENT**

- Your appointment as an authorised person is valid for a period of two years unless otherwise specified in the Instrument of Appointment or revoked sooner by the CAA.
- You must establish and maintain a system for the retention and control of records and documentation relating to the examination conducted.
- You must notify the CAA District Office as soon as practicable if you change your name or address.

### **EXPIRY OF APPOINTMENT**

If your appointment expires, or is about to expire and you wish to continue as an authorised person, then you should apply in writing to your local CAA District Office. This should be done preferably before the actual expiry date.

Your application should be accompanied by the appropriate fee and your re-appointment will be subject to:

- satisfactory performance of the functions and activities authorised over the period of validity; and
- possible CAA inspection of processed applications and records.

If your application is approved, you will be issued with a new Instrument of Appointment and identity card.

### **Conducting an aircraft welding examination**

Aircraft welding examinations are conducted in accordance with the CAA publication *Aircraft Welding Examinations* and the conditions specified in the Schedule attached to the Instrument of Appointment and the Aircraft Welding Examinations publication.

The following is representative of the nature of the conditions specified in the Schedule:

### **EXAMINATION PREPARATION**

Immediately on receiving the application form from a CAA District Office, you should arrange a suitable examination date/time/venue with the applicant.

### **CONDUCTING THE EXAMINATION**

When you are conducting aircraft welding examinations you should ensure:

- the applicant has a demonstrated knowledge of a welder's responsibility and limitations as the holder of an aircraft welding authority, and has adequate knowledge of welding terms and definitions as set out in *Australian Standard-AS2812*, the interpretation of drawings, joint preparation and welding defects and thermal stress;
- each aircraft welding examination is carried out in accordance with the specifications set out in the CAA publication *Aircraft Welding Examinations*. (Further information on the aircraft welding examinations can be found in CAAP No. 33-1.);

- the welding positions and metal groups are as specified and the procedures and consumable materials are representative of those used in production;
- the metal selected satisfies a degree of difficulty similar to the welding characteristics of the production welding task, any pre and/or post weld heat treatment, if required, is performed in a similar manner to that required for production welds represented by the weld samples; and
- the welds are not dressed or sand-blasted after welding, and any weld residue (flux, slag) is removed in the normal manner from the weld samples.

### **INSPECTION OF WELDS**

On completion of each welding examination, you should inspect the weld for obvious defects using the visual examination standard contained in the CAA publication *Aircraft Welding Examinations* as a guide. If any defects are found, you may permit the applicant to attempt a further examination. Note that, if applicants are not satisfied with the quality of a weld during an examination, they may attempt a further welding examination at their own discretion.

### **WELD IDENTIFICATION AND DOCUMENTATION**

On conclusion of the examination, you should stamp, etch or permanently mark the applicant's Aviation Reference Number (ARN) and the welding position codes (as applicable) on each welding sample.

You should then complete the *Request For Weld Test* form attached to this CAAP and send the form, together with the welding samples to the appropriate weld testing agency for weld assessment. Information on the weld assessment criteria may be found in the *Aircraft Welding Examination* publication.

After receiving the weld testing agency's assessment report, you should enter the relevant details onto the original application form and certify for the conduct of the examination.

### **FAILED EXAMINATION ACTION**

Where applicants fail an aircraft welding examination, they may make arrangements to attempt a further examination without penalty. However, if they again fail the re-examination, the CAA recommends that they should complete some form of remedial

training and give you a practical demonstration of the type of welding process/metal group before they are permitted to re-attempt the examination.

#### **REPORTING EXAMINATION COMPLETION**

On completion of the examination, you should make and retain copies of all documentation and send the originals of the application form and the weld testing agency report to the CAA District Office administratively responsible for the application.

#### **Documenting activities**

You should record all activities dealing with the conduct of the examinations and keep copies of all documents as specified in the Schedule of Conditions attached to the Instrument of Appointment.

You will be required to provide access to all documentation and records to CAA officers when requested.

## REQUEST FOR WELD TEST

### Instructions for compilation

On completion of an aircraft welding examination, the 'Request For Weld Test' form (DA 1853) is to be completed by the person conducting the aircraft welding examination, as follows:

- Enter the name and address details of the particular Weld Testing Agency to which the welding samples are being despatched for assessment.
- Enter the name and address details of the person conducting the aircraft welding examination (for return of assessment results/report).
- Enter the file number or registration number for the applicant/welding examination, as appropriate.
- Enter the applicant's Aviation Reference Number (ARN).
- Enter the date the aircraft welding examination was conducted.

In the column headed:

- **Welding Ident. No.;** enter the applicant's ARN.
- **Joint No.;** enter the joint identification number for the particular weld. (Specified in the Aircraft Welding Examination publication)
- **Welding Process Type;** enter the type of manual welding as defined in subregulation 29A (2).
- **Parent Metal;** enter the parent metal group, as defined in subregulation 29A (3) and the metal specification as appropriate.
- **Filler rod or electrode type;** enter details as applicable, enter 'NA' if not applicable.
- **Flux or shielding gas;** enter details as applicable, enter 'NA' if not applicable.
- **Welding position;** enter the welding position code as applicable. (Specified in the Aircraft Welding Examination publication)
- **Remarks;** enter any remarks or other details relevant to the aircraft welding examination, and enter a description of each of the welding assessment tests required for each of the particular welding samples, as follows:
  - ⇒ Joint No 1 - Sheet to Sheet Butt Weld: Visual Examination; Bend Test (AS 2205.3.1); Tensile Test (AS 2205.2.1); and Metallographic Test (AS 2205.5.1).
  - ⇒ Joint No 2 - Tube to Sheet Fillet Weld: Visual Examination and Metallographic Tests (AS 2205.5.1)
  - ⇒ Joint No 3 - Sheet to Sheet Fillet Weld: Visual Examination and Metallographic Test (AS 2205.5.1).
  - ⇒ Joint No 4 - Tube to Tube Weld: Visual Examination; Tensile Test (AS 2205.2.1) and Metallographic Test (AS 2205.5.1).
  - ⇒ Joint No 5 - Aircraft Component or Part Typical of Production Weld: Visual Examination and Metallographic Test (AS 2205.5.1).

Sign and date form in spaces provided.