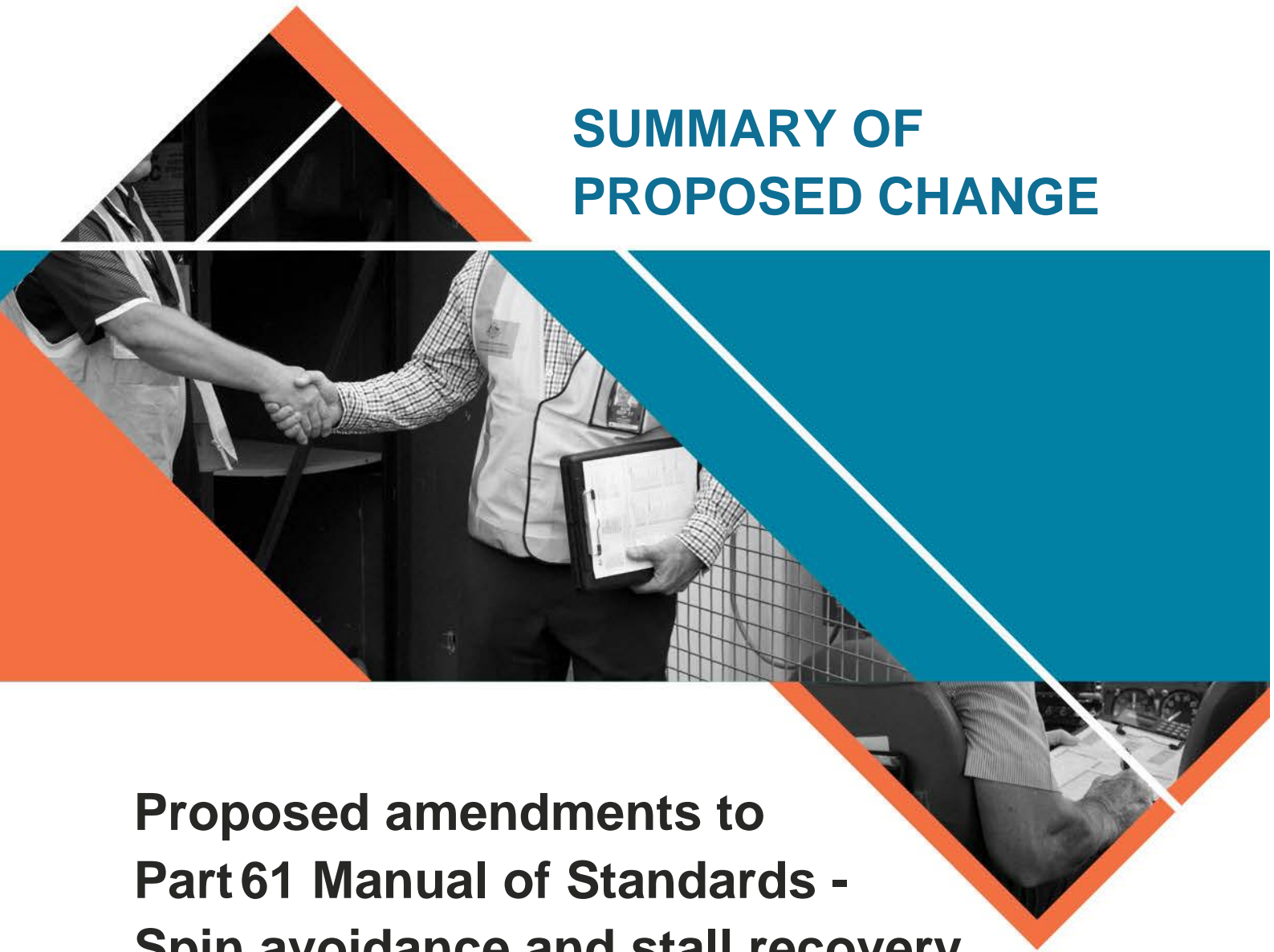




# SUMMARY OF PROPOSED CHANGE



## Proposed amendments to Part 61 Manual of Standards - Spin avoidance and stall recovery training

Part 61 Manual of Standards Instrument 2019

<b>Date</b>	May 2020
<b>Project number</b>	FS 14/25
<b>File ref</b>	F19/9251

## Introduction

CASA has been progressively transitioning the *Civil Aviation Regulations 1988* (CAR) to the *Civil Aviation Safety Regulations 1998* (CASR). Part 61 of CASR Manual of Standards (MOS) states the units of competency and the level of competence required for the issue of pilot licences, ratings and endorsements.

Recent fatal accidents have highlighted the need to remind pilots, instructors and training organisations of the risks associated with stall and spin training, and to review training practices in Australia and worldwide. Recovery from departures from controlled flight, particularly stall and spin, have long been a required competency in flying training and are described in the Part 61 MOS.

Published in conjunction with this consultation on proposed amendments to Part 61 MOS - Schedule 2: Competency standards and Schedule 5: Flight test standards, is Advisory Circular (AC) 61-16 Stall recovery and spin avoidance – training and practice. The AC:

- clarifies the definitions of wing drop at the stall and the incipient phase of a spin
- provides information regarding the interpretation of aircraft flight manual manoeuvre limitations with respect to intentional spinning
- promotes safer practices around the advanced stall exercise, particularly about recovery from wing drop at the stall and avoidance of spins.

The present practice of flight training and testing for 'incipient spin' called for in the Part 61 MOS may be inconsistent with safe practices, especially where the aeroplanes used are not certified for intentional spinning.

Induction of a spin (including spin at the incipient phase) for training purposes:

- must only be conducted in aeroplanes that are certified for intentional spinning,
- should only be conducted by an instructor who holds a spinning training endorsement, and
- is not specified by ICAO as a requirement for the issue of a private or commercial pilot licence with an aeroplane category rating.

## Actions taken

ATSB safety advisory notice AO-2017-096-SAN-012 "Is incipient spin training permitted in your aircraft?" was published in May 2019 as a result of a spin related fatal accident associated with a manoeuvre executed during advanced stall training commonly known as 'incipient spin'.

Consultation with CASA authorised officers and subject matter experts, ATSB, flight instructors, flying training organisations, flight examiners, test pilots, aircraft manufacturers and agents reveals:

- Inconsistent understanding of the departure characteristics, and recovery control inputs, for aircraft from slow flight, particularly at the stall.
- Confounded understanding of the concepts of 'wing drop at the stall' and 'spin at the incipient stage'.
- Regarding slow flight, stalling and spinning there is an incomplete understanding of the certification standards applied to aircraft utilised for training and how the aircraft are tested.
- Persistent application of control inputs during flying training taking aircraft beyond the margins of flight for which they have been tested or proven recoverable.

The International Civil Aviation Organization (ICAO) and international licensing training and airline upset avoidance and recovery training practices consistently use the words 'spin avoidance and stall recovery' across training.

From 18 December 2018 to 27 January 2019, CASA conducted public consultation on draft Advisory Circular (AC) 61-16 v1.0 - Spin avoidance and stall recovery training. The draft AC proposed additional safety requirements and guidance for the practice of advanced stall training that will require associated amendment to the Part 61 MOS. The proposed amendment would remove the requirement for flight training in the induction and recovery of spins at the incipient stage, in favour of spin avoidance training with greater emphasis on slow flight, stall recognition and recovery from wing drop at the stall. This would make advanced stall training prescribed in the Part 61 MOS consistent with spin avoidance and stall recovery training principles, specified by ICAO for upset prevention and recovery training (UPRT).

CASA received 75 responses to the survey, of which 15 represented organisations. 39 of the respondents provided additional written feedback of a general nature. Forty-six respondents gave permission for their responses to be published on the CASA website. All responses were evaluated to determine whether respondents either opposed, supported, or supported with some changes, the proposed policy expressed in the draft AC.

Predominantly, the responses supported the proposal and indicated that the AC was fit for purpose. Of those responses that did not support, or provided qualified support for the proposal, the following themes were identified:

- A high level of support for training and testing of spin recovery balanced with recognition that there are fewer instructors and a shrinking fleet of aircraft capable of delivering this outcome.
- Mandating training and testing of spinning, requiring all training to be conducted in aircraft certified for intentional spinning, would be a prohibitive cost to students and industry.

- Insufficient guidance regarding training for slow flight, stalling and stall with a wing drop.

CASA noted the feedback provided and remains satisfied that the draft AC, with enhancements drawn from the large volume of constructive feedback, will serve its intended purpose.

## **Purpose and scope of the proposed amendments**

Recent fatal accidents involving spins in training aircraft suggest a lack of instructor and flying training organisation understanding of aircraft limitations as applied to the advanced stall with wing drop air exercise, and training in recovery from a spin at the incipient phase.

The present practice of incipient spin training and testing raises inconsistencies with the Part 61 of CASR and supporting MOS Part 61 with respect to training and testing. Induction of a spin for training purposes:

- is not compliant with the flight manual limitations of many aircraft used for flying training
- is not compliant with the flight manual limitations of many training aircraft in use at Part 141 and 142 flying training organisations
- requires a flight instructor to hold a spinning training endorsement
- would require a licensed pilot to hold a spinning endorsement to practise intentional entry and recovery from any phase of a spin.

The proposed changes to the Part 61 MOS replaces the present 'incipient spin' exercise, which calls for the entry to a spin induced with the application of pro-spin rudder at the stall, with a 'stall with a wing drop' exercise which requires yaw to be prevented should the aircraft exhibit a roll at the stall in any configuration or manoeuvre called for in the training standard. The standard for slow flight in the aeroplane endorsement will also be amended to highlight critical aspects of this regime which are symptoms of impending stall.

Recovery from the incipient phase of a spin will not be removed from the glider category competencies.

Once in force the MOS exercises will form the foundation for spin avoidance and stall recovery training consistent with ICAO and international training practices, and will apply to:

- Pilots
- Flight instructors
- Trainers for the purposes of endorsement
- Heads of Operations at Part 141 and 142 Flight Training Operators
- Flight examiners.

## **Impact on industry**

CASA estimates that these amendments will generate safer training outcomes and align national training and testing standards with international and ICAO practices.

As a result of the amendments, flying schools will not be required to have fleets of aircraft capable of intentional spinning, which will be practical for operators that do not have such aircraft, and create a point of difference for schools that do.

Schools will be able to differentiate between training applications for different aircraft, as already occurs for navigation training in the step from smaller aircraft used for general handling training, to aircraft with a higher cruising speed, and to constant speed propeller units and retractable undercarriage.

Schools with aircraft certified for intentional spinning may promote spinning training and spinning flight activity endorsements as a complement to all licence classes.

Schools and instructors wishing to conduct spin recovery training or training for the purposes of the issue of a spinning flight activity endorsement will require a spinning training flight activity endorsement.

CASA anticipates most flight training operators are already conducting flight training activities in accordance with the proposed standards as a result of the recent publication of AC 61-16 v1.0 - Spin avoidance and stall recovery training. Any change required to an operator's syllabus of training for this purpose, would not require prior approval by CASA as it is not considered a significant change.

## Safety risk analysis

The proposed amendment is expected to enhance safety by:

- reducing the risk of aircraft not certified for intentional spinning being induced to spin
- clearly differentiating the difference between:
  - a stall with a wing drop which is a precursor to spin entry that may be avoided with standard stall recovery inputs, and
  - deliberate application of pro-spin rudder at the stall to enter a spin.
- clarifying the method of execution of the wing drop at the stall and spin avoidance exercise
- clarifying what constitutes spin training with respect to the entry inputs to a spin, and better definition of what activities are not permitted without a spinning flight activity endorsement.

Spin recovery training with a view to enhanced spin recognition and recovery skills will be promoted as a complementary training exercise ancillary to licence training. This training, and training for the issue of a spinning flight activity endorsement must be conducted by a spinning training endorsement holder.

The changes are not expected to have an adverse effect on safety.

## Regulation impact statement

CASA will prepare a Preliminary Impact Assessment for the amendment and prepare a Regulation Impact Statement if required by the Office of Best Practice Regulation. CASA anticipates the cost impact on industry to be minimal with potential savings as flight training operators will not be required to operate aircraft that are approved for spinning.

## **Closing date for comment**

CASA will consider all comments received as part of this consultation process and incorporate changes as appropriate. Comments on the draft Part 61 Manual of Standards Schedules 2 and 5 should be submitted through the online response form by close of business 26 June 2020.