



1. Effectivity

All Cessna 100, 200, 300 and 400 series aircraft.

2. Purpose

This is an explanatory document for all owners, registered operators and maintainers of Cessna aircraft related to the requirement to comply with Cessna Supplemental Inspection Documents (SIDs), to ensure the continued airworthiness of the affected Cessna aircraft.

This document should be read in combination with Aviation Ruling 01/2014 – Compliance with Supplemental Inspection Documents (*refer Attachment A*) and exemption Instrument number CASA EX26/14 (*refer Attachment B*).

Issue 2 of this document clarifies which Service Bulletins listed in the SIDs are required to be incorporated and confirms that where specified in the SIDs, on-going inspections are also required to be undertaken.

3. Background

Every aircraft, Cessna or otherwise, ages from its day of manufacture. However, the rate an individual aircraft ages depends on how that particular aircraft has been operated, maintained and stored over its life. Every aircraft will age in a unique manner depending on its own circumstances.





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Centre Rudder Hinge Mount Corrosion

Older aircraft (the average age of the Australian piston engine aircraft fleet is approximately 40 years), were built to the design, certification and maintenance standards applicable at the time. Many individual aircraft have now been operated well beyond the manufacturer's original design assumptions and anticipated operational life.

In many cases limitations existed in the fatigue life assessments, corrosion protection coatings, production methods and anticipated operational profiles and roles for the aircraft produced, particularly in relation to General Aviation (GA) aircraft.

These older aircraft are not necessarily unsafe (chronological age of an aircraft is only one factor impacting the airworthiness of an aircraft). This is provisional on the maintenance program being adapted to take into account the ageing process over time.



Cessna 172 Channel Splice

As a result of the growing concern of the safety of their increasingly ageing fleet, Cessna and the Federal Aviation Administration (FAA) commenced work on the SIDs Development Program for their products in the late 1990s. Comprehensive engineering studies were conducted by Cessna and the US Department of Transport commencing with the Cessna Model 402¹.

1. DOT/FAA/AR-98/66 Supplemental Inspection Document Development Program for the Cessna Model 402



These studies, progressively undertaken across all Cessna piston engine aircraft, were based on operational data and feedback surveys from the world-wide aircraft fleet, including that of defect reports, service-life simulations of actual flight profiles and feedback from operators, owners and National Aviation Authorities (NAAs).

The investigations identified critical areas of principal structural elements (PSEs) on the aircraft that have been proven, through service-life experience, to be susceptible to fatigue or corrosion damage. In many cases these PSEs have not been seen or inspected since the aircraft was manufactured as long as 40 years ago or more.

The SIDs programs, successively developed by Cessna for all 400, 300, 200 and 100 series aircraft, provide an inspection regime to ensure the structural integrity of the airframe is maintained. These supplemental inspections complement those inspections undertaken during existing scheduled maintenance activities, as the failure of such PSEs could result in catastrophic loss of the aircraft.

In addition, the SIDs also introduce fixed retirement lives for each aircraft model series, beyond which the continued airworthiness of the aircraft can no longer be assured (refer to the applicable SIDs for the relevant Cessna aircraft series).



Cessna U206G Main Landing Gear fitting



4. Requirement

The requirement to undertake the Cessna SIDs, which includes on-going inspections where specified, applies irrespective of the category of operation or the elected maintenance schedule for the aircraft:

- CAR 42A Manufacturer's Maintenance Schedule,
- CAR 42B CASA Maintenance Schedule (Schedule 5), or
- CAR 42C Approved System of Maintenance.

The Cessna SIDs is also mandatory in New Zealand as per the Cessna published timeframes. The Civil Aviation Authority of New Zealand has stated that up to 95% of the aircraft that have had the SIDs undertaken have reported damage being found, of which 20% could be classified as major.

CASA has received a significant number of Service Difficulty Reports reporting fatigue or corrosion damage as a result of undertaking SIDs inspections to date.

In relation to compliance with all Cessna Service Bulletins, the Aviation Ruling is intended to ensure compliance with those Service Bulletins related to Primary Structural Elements (PSE). PSEs components can be classified in the following manner:

- The component contributes significantly to carrying flight and ground loads, and
- If the component fails, it can result in catastrophic loss of the airframe.

Typical examples of PSEs include:

- Wing and empennage:
 - Control surfaces, flaps and their mechanical systems and attachments (hinges, tracks and fittings),
 - Primary fittings,
 - Principal splices,
 - Skin or reinforcement around cut-outs or discontinuities,
 - Skin-stringer combinations,
 - Spar caps, and
 - Spar webs.
- Fuselage:
 - Circumferential frames and adjacent skin,
 - Door frames,
 - Pilot window posts,
 - Bulkheads,
 - Skin and single frame or stiffener element around a cut-out,
 - Skin and/or skin splices under circumferential loads,



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- Skin or skin splices under fore and aft loads,
- Skin around a cut-out,
- Skin and stiffener combinations under fore-and-aft loads,
- Door skins, frames and latches, and
- Window frames.
- Landing gear and attachments
- Engine support structure and mounts.

Significantly, the SIDs were developed on the assumption that the aircraft had been maintained using the Manufacturer's Maintenance Schedule, or equivalent (including the incorporation of all applicable Service Bulletins), and do not necessarily take into account modifications or repairs made to the aircraft since manufacture.

Therefore, all Service Bulletins that directly relate to the structural integrity of the aircraft need to be incorporated to be in compliance with the SIDs inspections. Please note that some Service Letters and other information referred to in the SIDs requirements were originally discretionary in nature. These documents are now considered mandatory if referred to as part of the SIDs inspections requirements in relation to PSEs.

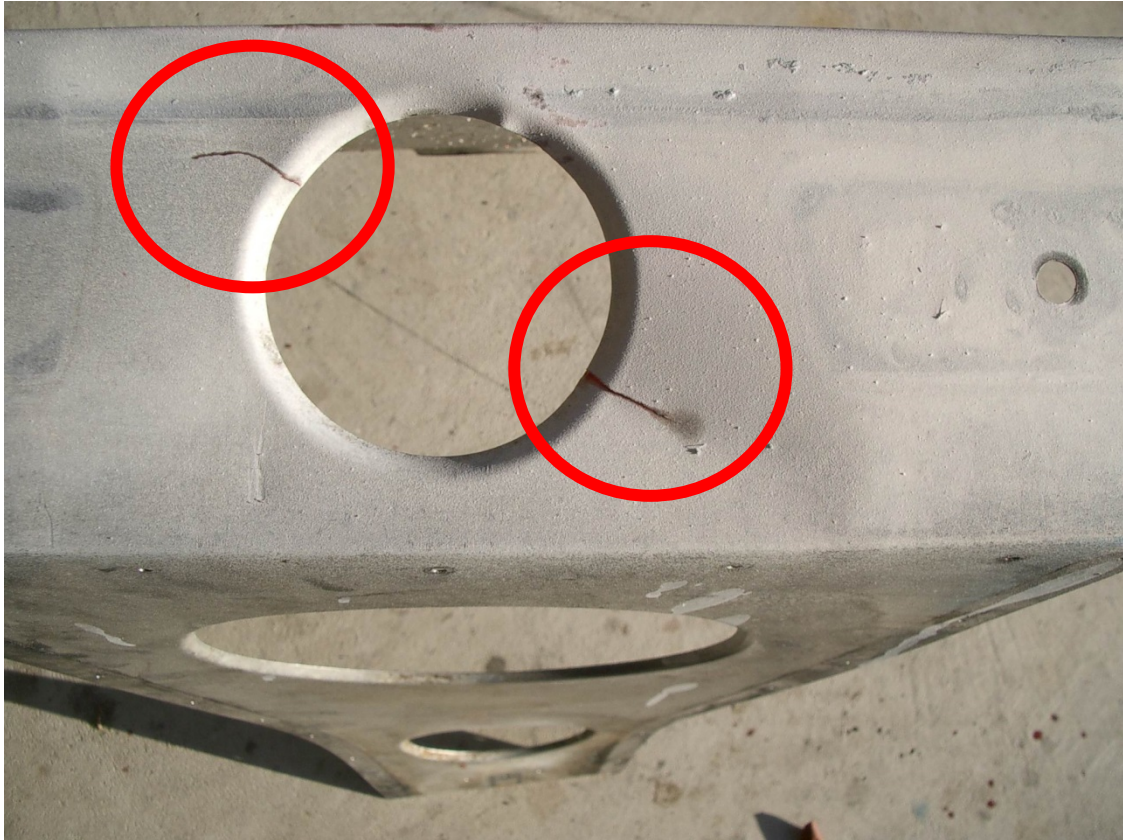


Cessna 177RG Stabiliser Balance Arm Brackets

For aircraft that have been modified or repaired in a manner different to this, the engagement of a CASR 21.M Authorised Person may be required to ensure that the impact of any changes to the aircraft's original configuration on the ability to comply with the SIDs are considered and appropriately addressed.



The requirement for ageing aircraft programs such as the SIDs for GA fleets is not constrained to Cessna products. However, Cessna is one of the few GA manufacturers to have developed this ageing aircraft initiative to such a comprehensive extent.



Cessna 172 Horizontal Stabilizer Front Spar Cracking

5. Log Book Statement Part 1

The requirement to undertake the SIDs should be written in the Log Book Statement Part 1 (CASA Form 925/942 or equivalent) by the Registered Operator.

6. Certifying for incorporation of the SIDs and defect reporting

A Log Book entry should be made along with any recurring maintenance requirements where applicable (CASA Form 928 or equivalent). Final certification for the completion of each required task in the SIDs should be made in the Aircraft Maintenance Certification Log (CASA Form 924 or equivalent).

In addition, any damage discovered to structure, functional systems or propulsions systems should be reported to CASA and the manufacturer in accordance with the requirements of Defect Report CAAP 51-1(2).



7. Summary

Registered operators of Cessna aircraft are to comply with the SIDs irrespective of their nominated maintenance schedule. Refer to Aviation Ruling 01/2014 for compliance time-frames.



Cessna 182H Flap Well Rib

8. Applying for exemptions

For any exemptions or variations from full compliance with the applicable SIDs, CASA recommends the engagement of a CASR 21.M Authorised Person to provide engineering justification for such exemptions or variations to allow for CASA consideration under CAR 2A Approved Maintenance Data. This includes any adaptation of the SIDs requirements to take into account pre-existing, non-Cessna approved modifications, Supplemental Type Certificates (STCs) or repairs.

If you wish to apply for an exemption or variation from full compliance with the SIDs please make applications to the Manager Continuing Airworthiness using the address details below.

The application should include:

- The applicant's contact details and ARN.
- Aircraft details (including hours/cycles).



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- Details of which provision of the SIDs the application covers.
- Details of how the applicant proposes to meet the safety requirement of the SID.

CASA will only approve applications which demonstrate at least an equivalent level of safety to the SIDs document. The application will be subject to CASA cost recovery action.

9. Enquiries

Enquiries with regard to the content of this Airworthiness Bulletin should be made via the direct link e-mail address:

AirworthinessBulletin@casa.gov.au

or in writing, to:

Airworthiness and Engineering Standards Branch
Standards Division
Civil Aviation Safety Authority
GPO Box 2005, Canberra, ACT, 2601



Attachment A – Aviation Ruling 01/2014

Aviation Ruling

Compliance with Supplemental Inspection Documents

Effective Date: This ruling is effective from 14 April 2014.

Catchwords: CARs 42, 42A, 42B, 42C, 42L, 42M, 42V, Schedule 5
SIDS
Maintenance schedules

Issue

- 1 The purpose of this ruling is to state when manufacturer's supplemental or structural inspection documents however described, including the Cessna Supplemental Inspection Documents (SIDs), issued as Instructions for Continued Airworthiness for an aircraft or the aircraft's aeronautical products, are required to be complied with.

Background

- 2 The *Civil Aviation Regulations 1988* (CAR) provides Registered Operators with three maintenance schedule options for Australian aircraft:
 - 2.1 CAR 42A – Manufacturer's Maintenance Schedule,
 - 2.2 CAR 42B – CASA Maintenance Schedule (Schedule 5 of CAR), and
 - 2.3 CAR 42C – Approved System of Maintenance.
- 3 If the Registered Operator has elected to use the CAR 42A Manufacturer's Maintenance Schedule, the requirement on the Registered Operator to comply with instructions for continued airworthiness; such as SIDs programmes and other manufacturer's supplemental or structural inspection programmes, will be identified by the manufacturer and will form part of the manufacturer's maintenance program for that aircraft, which must be complied with when maintaining the aircraft.
- 4 If the Registered Operator has elected to use the CAR 42B CASA Maintenance Schedule - actions such as inspection, checking, cleaning and lubrication must be undertaken at specified intervals typically every 100 hours or 12 months. Part 2 of the CASA Maintenance Schedule does not specifically reference special inspections such as SIDs programmes and other manufacturer's supplemental or structural inspection documents,



overhaul or replacement of any aircraft component installed in or fitted to the aircraft. However, maintenance actions must always be carried out in accordance with approved maintenance data in accordance with CAR 42V, and therefore compliance with SIDs and other manufacturer’s supplemental or structural inspection documents is mandatory.

- 5 If the Registered Operator has elected to use a CAR 42C Approved System of Maintenance to maintain their aircraft, having regard to the requirements of CARs 42L and 42M, a System of Maintenance for an aircraft, for which a SIDs programme and other manufacturer’s supplemental or structural inspection documents exist, should not be approved if a SIDs programme or similar inspection requirements are not incorporated in the System of Maintenance for the aircraft. The System of Maintenance will be defective and the Registered Operator must request CASA to approve a change to the system in accordance with CAR 42(c)(i). Further, if the System has any airframe inspection requirements, as noted above, maintenance actions must always be carried out in accordance with approved maintenance data in accordance with CAR 42V, and therefore compliance with SIDs and other manufacturer’s supplemental or structural inspection documents is mandatory.

Implementation – Cessna aircraft

- 6 CASA is aware of the current compliance timeframes for Cessna SIDs and the difficulty that may be encountered in immediately complying with them. To provide operators sufficient time to achieve full compliance with these instructions for continued airworthiness, exemptions for Cessna aircraft have been issued providing for the following compliance timeframes:

Compliance Table

Aircraft Series	Operational Category	Compliance Date
300 * 400**	All	31 December 2014
200	Aerial Work/Charter	30 June 2015
200 100	Private Aerial Work/Charter	31 December 2015
100	Private	30 June 2016

Notes

* Where an existing FAA approved Cessna Maintenance Manual, Chapter 4 Airworthiness Limitations Section includes the requirement for the incorporation of SIDs, this must be undertaken in accordance with the requirements of CAO 100.5 Paragraph 9, for example the model T303.



Compliance with Cessna Supplemental
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** Cessna 441 Conquest/Conquest II aircraft that have the Aeronautical Engineers Australia (AEA) Life Extension Program incorporated in accordance with CASA STC SVA 528 are to be maintained in accordance with the AEA Maintenance Manual Supplement Document No. MMS13757.030-01 or subsequent approved revisions.

Aviation Rulings

Aviation rulings are advisory documents setting out CASA's policy on a particular issue. CASA makes rulings available to CASA officers and the public to ensure that there is a consistent policy adopted in administering particular aspects of the air safety regulatory regime. Rulings are intended to apply to a range of factual situations and are necessarily general in nature.

CASA will proceed on the basis that a person who relies on a ruling is complying with the law, as long as that person:

- i) Exercises due care in acting in reliance on the ruling – ie a person who carelessly misreads the test of a ruling will not be entitled to rely on that misreading;
- ii) Relies on the ruling in good faith – ie CASA will not allow a person to frustrate the intent of the ruling by adopting an extreme or contrived interpretation of the words of the ruling which results in consequences that were clearly unintended by CASA at the time the ruling was issued;
- iii) Only relies on the clear statements of fact and policy in the ruling – ie the ruling is completely self-contained and does not permit any additional interpretation of the relevant law, or application of the policy to different fact situations.

A user of aviation rulings should also be aware that a ruling is only a statement of CASA's policy. It is not a restatement of the law. Accordingly, while rulings are drafted to be consistent with the law referred to in the ruling as understood by CASA from time to time, they cannot displace any inconsistent legal requirements. You should notify CASA's General Counsel if you believe that compliance with this ruling would lead to a breach of a legal requirement or if you believe that a ruling is based on an erroneous factual assumption.

[Signed John F. McCormick]

John F. McCormick
Director of Aviation Safety

25 March 2014



Attachment B – Instrument number EX26/14

Instrument number CASA EX26/14

I, JOHN FRANCIS McCORMICK, Director of Aviation Safety, on behalf of CASA, make this instrument under regulation 11.160 of the *Civil Aviation Safety Regulations 1998*.

[Signed John F. McCormick]

John F. McCormick
Director of Aviation Safety

25 March 2014

Exemptions —compliance with SIDs in the maintenance of Cessna aircraft

1 Duration

This exemption:

- (a) commences on 14 April 2014; and
- (b) expires on the expiry date specified in Schedule 1 in relation to the applicable Cessna aircraft description and class of operations, as if it had been repealed by another instrument.

2 Definitions

In this instrument:

CAR 1988 means the *Civil Aviation Regulations 1988*.

FAA means the Federal Aviation Administration of the United States of America.

maintenance means maintenance referred to in any of the following provisions of CAR 1988:

- (a) regulation 42A (the manufacturer's maintenance schedule);
- (b) regulation 42B (the CASA maintenance schedule);
- (c) regulation 42C (an approved system of maintenance).

3 Application

This instrument applies to:

- (a) each person carrying out maintenance on a Cessna aircraft referred to in Schedule 1 (a **Schedule 1 aircraft**) in respect of compliance with supplemental inspection documents (**SIDs**); and
- (b) any of the following persons in respect of compliance with SIDs in maintaining a Schedule 1 aircraft:
 - (i) the holder of the certificate of registration;



- (ii) the operator;
- (iii) the registered operator;
- (iv) the pilot in command.

4 Exemption from CAR 1988 regulations

Subject to section 5, a person mentioned in section 3, is exempt from compliance with regulations 38, 39, 41, 42, 42V and 42ZP of CAR 1988.

5 Exceptions to application of exemption

This exemption is subject to the following exceptions:

- (a) where an existing FAA approved Cessna Maintenance Manual, Chapter 4, Airworthiness Limitations Section has had a SID, or part of a SID, incorporated into its requirements, that SID, or part, must be complied with as a mandatory maintenance requirement referred to in subsection 9 of Civil Aviation Order 100.5.
- (b) Cessna 441 Conquest/Conquest II aircraft that have the Aeronautical Engineers (AEA) Life Extension Program incorporated in accordance with CASA STC SVA 528 must be maintained in accordance with the AEA Maintenance Manual Supplement No. MMS13757.030-01 or subsequent CASA approved revisions.

Note For example, in relation to paragraph (a), see Cessna model T303, where some aspects of SIDs have been incorporated into the maintenance manual and have to be complied with as mandatory maintenance requirements.

Schedule 1

Cessna Type/Model	Class of operations	Expiry date
C300/400	All	31 December 2014
C200	Aerial work/Charter	30 June 2015
C200	Private	31 December 2015
C100	Aerial Work/Charter	31 December 2015
C100	Private	30 June 2016