



1. Applicability

All Fairchild Swearingen (M7 Aerospace) SA226 and SA227 aircraft.

2. Purpose

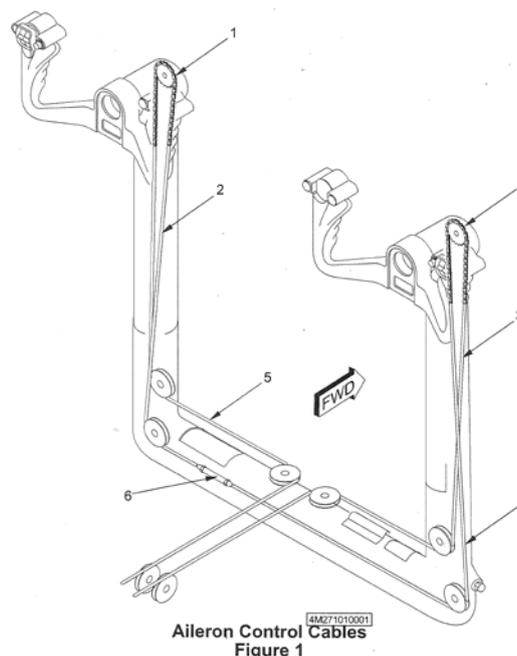
To clarify the items that form the aileron control cable system and the associated Instructions for Continuing Airworthiness (ICA).

3. Background

CASA has been made aware of a situation where inspections to the aileron control cable system that are a requirement per the Airframe Airworthiness Limitations Manual (AWL) were not being performed due to a misinterpretation of what components make up the system.

The AWL requires the aileron cable system be visually inspected at 10,000hrs with subsequent re-inspections every 400hrs after the 10,000hr threshold. The manufacturer recommends the replacement of the cables at 10,000hrs which subsequently removes the requirement for the re-inspection every 400hrs. Further detailed inspection requirements at lower intervals are provided as part of the manufacturer's recommended maintenance program.

The Aircraft Maintenance Manual (AMM) in chapter 27-10-10 Aileron Control – Description and Operation states that the “aileron control cable is comprised of six cables joined together by a series of turnbuckles and chains to make one continuous cable system”. As an example, for the SA227-DC this can be found in section 27-10-10 page 1. (refer figure 1 below)





Aileron Control Column Chains

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In one example provided to CASA, the control cable chain (item 1, Figure 1) was found to be severely corroded (refer image Figure 2). This chain had not been inspected or replaced per the AWL requirements as it was assumed by the operator that this item was not part of the cable and subsequently not affected by the AWL requirements.

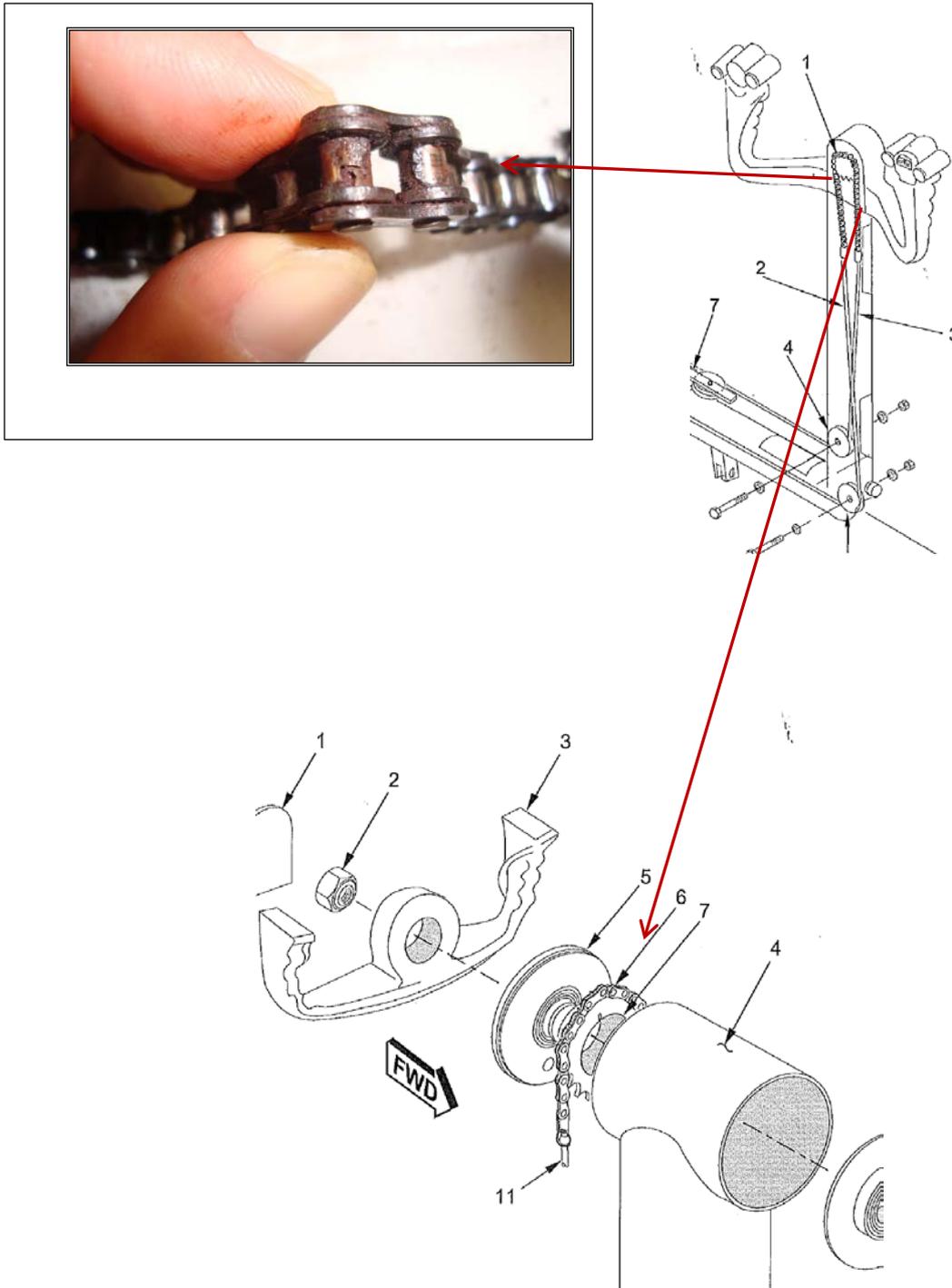


Figure 2



The manufacturers' maintenance schedule has in the detailed inspections for the flight compartment a task to “**Inspect control chain for corrosion, condition and security**” using access panels #303 (for L/H) and #304 (for R/H column), as in Figure 3 below. The interval for this task is at every Phase 5 check at an interval of 900hrs (in Phase 5 of the 6 Phase Check inspection schedule).

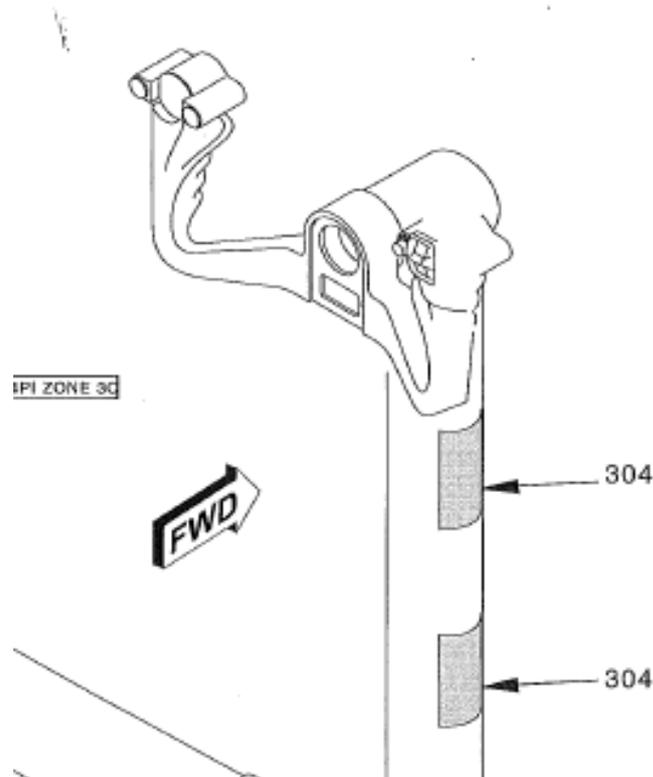


Figure 3

Investigation and experience has shown that this area inside the control column is difficult to inspect. The Type Certificate holder is aware of the difficulty to adequately inspect this area and is currently developing enhanced inspection requirements.

Furthermore, there is currently no requirement to re-lubricate the chain at scheduled maintenance intervals. In Chapter 12 of the Aircraft Maintenance Manual (AMM), the lubrication chart specifies the grease to be used on the Aileron Control Chain to be MIL-G-81322 applied by hand in 2 places (L/H& R/H). This requirement is currently only applicable at chain installation.



4. Recommendations

- 1) CASA recommends that operators review their maintenance program to ensure the control column chains of the aileron control cable system are scheduled to be inspected or replaced at the 10,000hrs threshold as required by the Airframe Airworthiness Limitations Manual (ST-UN-M003).
- 2) CASA recommends that operators review their maintenance program to ensure the task to inspect the control chain for corrosion, condition and security is adequate to perform a detailed inspection of all areas of the chain, including the rollers, links and pins typically located at the top of the column when the control yoke is in the neutral position.
- 3) Should the reviews conducted in 1) or 2) above show that maintenance has not been performed in accordance with the manufacturers requirements, CASA recommends operators contact the Type Certificate holder (M7 Aerospace) for guidance on their specific scenario.

Notes:

- *Civil Aviation Order (CAO) 100.5 Paragraph 9.1 "directs each person who is the holder of the certificate of registration for an Australian aircraft to comply with the requirement specified in the Airworthiness Limitations Section (AWL) of the maintenance manual..."*
- *A Detailed Inspection is defined as: An intensive examination of a specific item, installation, or assembly to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate. Inspection aids such as mirrors, magnifying lenses, borescopes etc. may be necessary. Surface cleaning may be required.*

CASA is further investigating this issue with the aircraft Type Certificate holder and further action may be required as a result of this investigation.

5. Reporting

All defects associated with SA227 and SA226 Control Column Chains in the aileron control system are to be reported to CASA through the SDR defect reporting system.



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6. Enquiries

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

AirworthinessBulletin@casa.gov.au

or in writing, to:

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Civil Aviation Safety Authority
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