Australian Government
Civil Aviation Safety Authority

REGULATORY AND SAFETY REVIEW

CASA Ref: D18/466960

DATE: 14 September 2018

TO: Shane Carmody, CEO and Director of Aviation Safety

THROUGH: **Graeme Crawford, Group Executive Manager, Aviation Group**

Chris Monahan, Executive Manager, National Operations and Standards Division

FROM: Tony Stanton, Branch Manager, General Recreational and Sport Aviation

RE: **Regulatory and Safety Review – Accident involving aircraft registration VH-XMJ at Renmark on 30 May 2017**

REGULATORY AND SAFETY REVIEW TERMS OF REFERENCE

On 28 June 2018, revised Terms of Reference (ToRs) were issued for the Regulatory and Safety Review (RSR) of matters related to the accident involving aircraft registration mark VH-XMJ on 30 May 2017. The revised TORs reflect those terms now generally applicable to all RSRs conducted by CASA. This document provides a summary of a review conducted in accordance with these revised TORs.

On this basis, an RSR was undertaken with particular regard to:

1. *CASA's regulatory posture with regard to the operator(s) at the time of the accident, including recent surveillance, regulatory services and recent audit activity;*
2. *Any immediate action CASA might consider necessary in the interests of aviation safety;*
3. *Any significant learnings for CASA from the specific accident/incidents; and*
4. *Any further matters that might be considered relevant by the CEO/DAS given the circumstances of an accident/incident.*

PRECIS OF ATSB PRELIMINARY REPORT

On 30 May 2017, a Cessna Conquest 441 (C441) aircraft registration mark VH-XMJ, operated by AE Charter Services Pty Ltd (Rossair) collided with terrain near Renmark Airport, South Australia. All three occupants were fatally injured. The flight originated from Adelaide Airport. The three persons on board were: Martin Scott (Chief Pilot), Paul Daw (pilot undergoing induction) and Stephen Guerin (CASA Flying Operations Inspector). The purpose of the flight was for Chief Pilot Martin Scott to conduct an operator proficiency check (OPC) for inductee pilot Paul Daw and for CASA Flying Operations Inspector (FOI) Stephen Guerin to assess Martin Scott as a Check Pilot for Rossair at the same time. All three were qualified to act as the pilot in command on the C441 and were aware of the activities they were going to conduct, including abnormal conditions such as a simulated engine failure(s).

The Australian Transport Safety Bureau (ATSB) investigation into the accident is ongoing and importantly, it is the ATSB which is responsible for determining the cause of, and factors contributing to, the accident. A final report has not yet been published by the ATSB.

Aspects of this RSR may be revisited in the light of the ATSB accident investigation report, when that report is published.

REGULATORY OVERSIGHT INFORMATION

ToR 1: CASA's regulatory posture with regard to the operator(s) at the time of the accident, including recent surveillance, regulatory services and recent audit activity

Air Operators Certificate – AE Charter Services Pty Ltd

According to CASA's records, the operator's current Air Operator's Certificate (AOC) was issued on 15 July 2015, as revision 24, with an expiry date of 31 August 2018. The AOC operations specification authorises charter operations in a variety of aircraft types including the C441.

AE Charter Services Pty Ltd (Rossair) holds a CAR 217 Training and Checking Organisation (TCO) approval as two of the other type of aircraft they conduct charter operations in, i.e. Embraer 120 (EB120) and Beech Aircraft Corp 1900D (B1900D) have a maximum take-off weight exceeding 5,700 kg. The C441 aircraft has a maximum take-off weight less than 5,700 kg and is not required by CAR 217(1) to have a TCO provided for by an operator. Rossair's TCO approval was issued on 05 July 2016 and was valid to the end of June 2018. At the time of the accident oversight of Rossair was carried out by Certificate Management Team 4 (CMT 4) within Western Region based in Adelaide.

Surveillance records in Sky Sentinel confirm that there were 17 surveillance activities associated with Rossair since 1 January 2015. Sixteen of these events were level two type activities and one event was a level one systems audit. A review of the level two activities confirmed that 13 were closed, 2 had commenced and 2 had yet to commence. 12 were unscheduled activities initiated by the oversighting team post review of Cirris incident data related to Rossair's operations.

Although CASA had scheduled a level one surveillance event (No. 11985) there was no evidence of the continuous management of the event once approved. It was identified that the surveillance event was not rescheduled until two months after the planned scheduled date in Sky Sentinel. There is no commentary regarding the approved event post 7 March 2017. The surveillance event had not taken place as at 30 May 2017.

Recent surveillance activity

The following tables contain the Sky Sentinel surveillance records for Rossair:

Event No.	Event Type	Status	Scheduled Start	Scheduled Finish
12537	Level 2 – Unschd Occ	Commenced	13-01-17	30-06-17
12470	Level 2 – Unschd Occ	Closed	10-01-17	30-06-17
12173	Level 2 – Unschd Occ	Commenced	28-10-16	30-06-17
12077	Level 2 – Unschd Occ	Closed	10-07-16	31-12-16
11985	Level 1 – Systems Audit	Approved	21-11-16	25-11-16
11898	Level 2 – Unschd Occ	Closed	06-09-16	31-12-16
11819	Level 2 – Unschd Occ	Closed	16-04-16	26-08-16
10770	Level 2 – Operational Chk	Closed	11-04-16	12-04-16
10334	Level 2 – Unschd Occ	Closed	10-02-16	30-06-16
10040	Level 2 – Unschd Occ	Closed	22-12-15	31-12-16
9654	Level 2 – Unschd Occ	Closed	14-10-15	31-12-15
9652	Level 2 – Unschd Occ	Closed	13-10-15	31-12-15
9573	Level 2 – Unschd Occ	Closed	28-09-15	31-12-15
9312	Level 2 – Ramp Chk	Closed	28-09-15	31-12-15
9117	Level 2 – Unschd Occ	Closed	19-07-15	31-12-15
8071	Level 2 – Enroute Chk	Approved	02-03-15	13-03-15
7976	Level 2 – Enroute Chk	Closed	31-12-2014	30-06-15

Recent regulatory service history - Check Pilot application Martin Scott

In relation to the accident flight, the regional office[1] advised that CASA Form 1215, being the application form for Check and Training Pilots within a CAR 217 TCO was not received, rather the regulatory service task request was received orally and then actioned by FOI [redacted]. A formal regulatory service task was raised in the CASA e-rooms[2] tool for this regulatory service and a fee estimate of $440 processed by the regional office.

[1] CASA reference D17/423608
[2] CASA reference D17/24507

Check Pilot training for applicant Martin Scott

The Check Pilot training framework (referred to as examiner pilots in the manual) for Rossair was described in section 12 of Part C of its Operations Manual[3] and appendix 2[4] of Part C of that manual. The minimum experience requirements are detailed in section 1.7.4 of that manual. Martin Scott met those requirements. Check Pilot training was prescribed in the manual to include:

- a minimum of six-line flights (sectors)
- two sectors in the left-hand seat
- four sectors in the right-hand seat
- Pass a proficiency check from the right-hand seat.

A review of the Check Pilot training records[5] for Martin Scott indicates he completed the training in Part C of the operations manual, by completing the activities listed below:

- 4 April 2016 C441 2.8 Hrs by [redacted]
- 8 April 2016 C441 2.5 Hrs by [redacted]
- 20 April 2016 observing only
- 21 April 2016 observing only
- 22 April 2016 observing only
- 30 May 2016 C441 2.6 Hrs by [redacted]

Martin Scott provided the below documentation (which was forwarded to CASA) as certification of completing the specified Check Pilot training:

- 15 April 2016[6] C441 OPC (LHS) 1.9 Hrs by [redacted]
- 30 May 2016[7] C441 OPC (RHS) 1.4 Hrs by [redacted]
- 30 May 2016[8] C441 Line Check Assessment 2.6 Hrs by [redacted]
- 30 May 2016[9] C441 Training syllabus check form recommendation

The Check Pilot training described in the manual was concluded 12 months prior to the assessment by CASA (accident flight). Evidence was gained that a single refamiliarization flight took place the week prior to the assessment. The practical functions that would have been authorised by the CAO 82.0 Check Pilot approval are reasonably comparable to those of a CASR Part 61 Flight Examiner Rating holder and the holder of a CASR Part 61 multi-engine class (aeroplane) training endorsement.

[3] CASA reference D17/425888
[4] CASA reference D17/426189
[5] CASA reference D17/426355
[6] CASA reference D17/426599
[7] CASA reference D17/426365
[8] CASA reference D17/426361
[9] CASA reference D17/426357

Enforcement history

This review found no evidence of relevant or recent enforcement action taken against any permission holder identified as relevant to this accident.

ToR 2: Any immediate action CASA might consider necessary in the interests of aviation safety

In June 2017, CASA published Temporary Management Instruction (TMI) 2017-004. This TMI provides instructions to CASA Officers tasked with in-aircraft activity as a CASA employee.

Summary of findings and recommendations

Summary of findings

ToR 3: Any significant learnings for CASA from the specific accident/incidents

Operator manual procedures are potentially inconsistent with *Civil Aviation Advisory Publication* (CAAP) 5.23-1(2) and ATSB Report

In December 2001, the ATSB published aviation safety report BO/20000049210 - One-engine inoperative training – failure to achieve predicted performance. This report was published as a result of a Beech 1900D training flight, which occurred on 13 February 2000. The Check Pilot simulated engine failures by retarding the power level to flight idle; both shortly after take-off and also at a height of 2,000ft. On both occasions, the aircraft experienced significant performance and directional control issues as a result of the simulation methodology.

Notably, the report states:

> *"This occurrence demonstrated the potentially serious consequences of degraded aircraft performance by setting 'FLIGHT IDLE' to simulate one-engine inoperative. The practice has the potential to jeopardise the safety of flight and should be strongly discouraged". (PVII)*

The report also states:

> *"CASA advised that it will publish an amendment to the Civil Aviation Advisory Publication 5.23-1(0) to highlight appropriate engine-out training procedures in turbo-propeller aircraft. CASA also advised that it would ensure that operators' manuals contained appropriate procedures for the conduct of multi-engine training, and that it would draw attention to those procedures during forthcoming safety promotion activities. The operator advised that it had instructed its check pilots that an engine's power level must not be retarded below zero thrust torque setting when simulating an engine failure on take-off". (VIII)*

The procedures described in section C2.5 of the AE Charter Services Pty Ltd operations manual for the simulation of asymmetric operations are not consistent with the safety message of this report and CAAP 5.23. The operator on receipt of the ATSB aviation safety report, should have read the report in conjunction with CAAP 5.23 and conducted a review of their operations manual to determine if the content was consistent with both.

The procedures in section C2.5 of the AE Charter Services Pty Ltd require the power level to be reduced to minimum and then on completion of the engine failure drill, set to zero thrust.

[10] https://www.atsb.gov.au/media/24342/aair200000492_001.pdf

CASA approves Part C of the manual (the tests and checks of the training organisation are subject to the approval of CASA).

ToR 4: Any further matters that might be considered relevant by the CEO/DAS given the circumstances of an accident/incident.

In June 2017, CASA published Temporary Management Instruction (TMI) 2017-004. This TMI provides instructions to CASA Officers tasked with in-aircraft activity as a CASA employee. The instruction applied immediate additional protections and/or formalises extant good practice to CASA Officers performing functions on behalf of CASA until investigations are finalised and if required, more enduring action taken.

Recommendations

CASA

1. CASA should consider reviewing CASA and Industry practices for conducting assessments of Check Pilots and Pilots undergoing induction respectively, where the assessment activity includes abnormal conditions such as simulated engine failure at take-off. CASA should consider reviewing relevant operations manuals to ensure the procedures relating to the simulation of an engine failure in a turbo-prop aircraft are consistent with either the aircraft flight manual - or the guidance CAAP 5.23-1(2) where the aircraft flight manual or manufacturer does not specify otherwise. This could occur as an item during future scheduled surveillance programs. CASA should consider safety promotion activity to address general awareness of appropriate simulation procedures for those conducting these operations privately.

2. CASA should consider conducting a risk assessment of the current pilot assessment approach and potential alternatives to determine the most appropriate solution going forward both from a pilot competency and safety perspective.
    a. The Risk Assessments might include (but not limited too):
        i. Continuing the current practice
        ii. Simulating abnormal conditions at a higher altitude
        iii. Conducting abnormal conditions in another twin propeller powered aircraft simulator located in Australia

3. Once investigations are finalised, consideration should be given to removal, variation or mandating protections in Temporary Management Instruction 2017-004 not only for CASA Officers, but more generally.