

AIRWORTHINESS APPROVAL NOTE NO: 28400

APPLICANT: CSE Bournemouth Limited

AIRCRAFT TYPE: Cessna 560XL

REGISTRATION NO: G-XLMB CONSTRUCTOR'S NO: 560-5259

OPERATOR: Beauport Aviation Limited

DESIGN ORGANISATION: Cessna Aircraft Company

CERTIFICATE CATEGORY: Transport Category (Passenger)

UK Certification of Cessna Citation Model 560XL (Excel)
Serial Number 560-5259

1. Introduction

CSE Bournemouth Limited have made application for the certification of Cessna Model 560 serial no. 560-5259 in the Transport Category Passenger. The Citation Excel is a version of the Model 560 Citation Ultra, which introduced a number of design changes at aircraft serial no. Block Point Change (BPC) S/N 560-5001 and on. CAA has Type Certificated the Cessna Model 560 Excel for which AAN27332 records compliance with the applicable CAA requirements.

This AAN has been raised to cover the CAA investigation into, the design changes embodied on serial no. 560-5259 and compliance with the UK Additional Requirements for Import (ARIs), such that the aircraft can be issued with Transport Category Passenger UK Certificate of Airworthiness.

2. Aircraft Build Standard

2.1 Type Specification Documentation

The basic CAA specification is defined in AAN27332.

Those Class 1 Engineering Change Requests (ECRs) and options associated with serial no. 560-5259, have been defined by Cessna in document Cessna UK Build Standard Document 560XL-00-011 Revision H.

2.2 Radio / Navigation Equipment

Description	Manufacturer	Part No(s).	CAA Approval Reference no.
Radio Management Unit - VHF Communication / VHF Navigation / ADF	Honeywell RNZ-850	7012100-825	VC01004
VHF Communication Unit with Mode S	Honeywell RCZ-833E	7510700-766	VC01004
Integrated Navigation Unit Marker/ ILS / VOR / DME / ADF	Honeywell RNZ-850	7510100-931 7510100-933	VC01004
EGPWS Computer	Allied Signal Mark V	965-0976-040-213-213	VC01107
FDR	Allied Signal	980-4700-025	AR01143
CVR	Loral Fairchild A2100	S200-0012-00	AR01353
TCAS	Honeywell TPU-67A	066-01146-1211	VC01016
Weather Radar	Primus P880	7021450-801	VC01099
Radio Altimeter	Collins ALT 55	622-2855-011	VC00292
ELT	Artex 110-4	453-5000-999	LBA.N-O.10.915/20 JTSO
GPS	Contained within Honeywell IC-615	7017000-98801	VC01195 This is a temporary equipment approval, which is valid until 25 September 2002.

2.3 Interior Configuration Details

This aircraft is configured in an eight-passenger seating layout, including a “wide” single side facing seat at the forward right hand side of the aircraft and a standard side facing seat at the forward left hand side of the aircraft. A refreshment centre is located towards the front of the aircraft on the right hand side. Cessna drawing 4514259 Revision C refers.

2.4 Powerplant / Auxiliary Power Unit

The aircraft is configured with two P&WC PW545A engines.

The optional Honeywell RE100[XL] Auxiliary Power Unit is installed on aircraft 560-5259.

3. Approval Procedures

This aircraft /validation has been carried out in accordance with BCAR B2-2.

4. Basis Of Validation

4.1 CAA Validation Basis For The Aircraft

See AAN27332.

4.2 CAA Design Requirements For Certificate Of Airworthiness

See AAN27332.

4.3 Environmental Requirements

See AAN27332.

4.4 Design Requirements Associated With Operational Approvals

See AAN27332.

5. Compliance With The Basis Of Validation

5.1 Compliance With Validation Basis For The Aircraft

Compliance with the Additional Requirements (AR's) has been established by Cessna using modifications to the aircraft, or amendments to the aircraft manuals etc., as agreed by the CAA. The package of modifications for UK Certification is defined in the Cessna UK Build Standard Document 560XL-00-011 Revision H.

The means of compliance employed in each case is as follows: -

AR1 Introduction

See AAN27332.

AR2 Changes in Design

Cessna have provided a list of design changes under cover of their UK Build Standard Document 560XL-00-011 Revision H, defining those Class 1 Engineering Change Requests associated with serial no. 560-5259. These changes have been reviewed by CAA and are acceptable, as outlined in this AAN.

AR3 Applicable CAA Requirements

See AAN27332.

AR4 Additional Requirements (Type Certification)

4.1.1 Flight

- 10(2) Standby Instruments - Citation 560 V and Citation 560 Ultra, up to and including Serial No. 560-0538.

Not applicable to Citation 560 Excel aircraft 560-5001 and onwards satisfied by basic FAA standard.

- 12(4) Altimeters - Citation 560 V and Citation 560 Ultra, up to and including Serial No. 560-0538.

Not applicable to Citation 560 Excel aircraft 560-5001 and onwards satisfied by basic FAA standard.

- 12(6) Colour of Heading Indication - Citation 560 Ultra Serial Nos. 560-0260 to 560-0400 inclusive.

Not applicable to Citation 560 Excel aircraft 560-5001 and onwards satisfied by basic FAA standard.

4.1.3 Structures

- (1) Birdstrike Damage Protection - Citation 560 Encore Serial No. 560-0539 and onwards up to and including Serial No. 560-5000.

Not applicable to Citation 560 Excel aircraft 560-5001, see ARI 4.1.3(2) below.

- (2) Birdstrike Damage Protection - Citation 560 Excel Serial No. 560-5001 and onwards.

To comply with JAR 25.631, the following areas must be provided with adequate protection to ensure continued safe flight and landing of the aeroplane, following an impact with a 4 lb bird, in accordance with this requirement.

- a) Wing leading edge / forward spar, inboard of Wing Station 91. Satisfied by the introduction of wing leading edge modification, in accordance with Cessna drawings 6692100.
- b) Nose located oxygen bottle. Satisfied by the introduction of oxygen bottle protection modification, in accordance with Cessna drawings 6691300.
- c) Forward radome bulkhead. Satisfied by the introduction of frame installation modification, in accordance with Cessna drawings 6691300.
- d) Leading edge of the vertical fin. Satisfied by the introduction of vertical fin modification, in accordance with Cessna drawings 6691300.

4.1.4 Hydro-mechanical Systems

- (1) Protection of equipment on the landing gear and in the wheel wells - Citation 560 Encore Serial No. 560-0539 and onwards and Citation 560 Excel Serial No. 560-5001 and onwards.

Satisfied by the revised routing of the hydraulic brake hoses for the main landing gear wheels, in accordance Cessna drawing 6694007.

- (2) Protection of the Nose Wheel Steering During Ground Manoeuvring using External Means - Citation 560 Encore Serial No. 560-0539 and onwards and Citation 560 Excel Serial No. 560-5001 and onwards.

Satisfied by Flight Manual Limitation on towbarless towing, placard reference Cessna drawing 6694005 and Aircraft Maintenance Manual instructions.

- (3) Take-Off Configuration Warning System Parking Brake - Citation 560 Excel Serial No. 560-5001 and onwards.

Satisfied by the introduction of the park brake take-off configuration warning, in accordance with Cessna drawings 6618536.

- (4) Main Cabin Door - Citation 560 Excel Serial No. 560-5001 and onwards.

To comply with JAR 25.783, CAA/C560XL/04 - NPA 25D-218 Rev 2 & JAR25.809 (c) the main cabin door should be appropriately modified to take account of the following: -

- a) The means of opening, for the main cabin door. Satisfied by the introduction of door handle button modification, in accordance with Cessna drawings 6691015.
- b) The door locking means. To be satisfied by the introduction of cabin door lock system modification, in accordance with Cessna drawings 6691029.
- c) The door visual indications. To be satisfied by the introduction of door visual indication modification, in accordance with Cessna drawings 6691030.
- d) The vent panel operating linkage. To be satisfied by the introduction of the dual vent door spring modification, in accordance with Cessna drawings 6691023.
- e) Manual override of the automatic control of the vent. To be satisfied by the inhibition of the vent manual override modification, in accordance with Cessna drawings 6691023.

4.1.5 Electrical Systems

- (1) Engine Earth Mounting - Citation 560 Encore Serial No. 560-0539 and onwards up to and including Serial No. 560-5000.

Not applicable to Citation 560 Excel aircraft 560-5001 and onwards satisfied by basic FAA standard.

- (2) APU Bonding - Citation 560 Excel Serial No. 560-5001 to 560-5167 fitted with the optional APU.

Not applicable to Citation 560 Excel aircraft 560-5259 as the aircraft is post aircraft serial no. 560-5167 and is satisfied by Cessna drawing 6651610.

- (3) Emergency Standby Power- - Citation 560 Excel Serial No. 560-5001 and onwards.

Satisfied by the introduction of automatic interior load shed modification, in accordance with Cessna drawings 6608522.

4.1.6 Avionic Systems

None.

4.1.7 Powerplant Installation/Fuel Systems

- (1) Audible fire warning - Citation 560 Encore Serial No. 560-0539 and onwards and Citation 560 Excel Serial No. 560-5001 and onwards.

Satisfied by the introduction of an audible powerplant fire warning, in addition to a visual warning, in accordance with Cessna drawing 6618535.

- (2) Fuel Filler Cap Lanyard - Citation 560 Encore Serial No. 560-0539 and onwards up to and including Serial No. 560-5000.

Not applicable to Citation 560 Excel aircraft 560-5001 and onwards satisfied by basic FAA standard.

- (3) APU Fuel Shut-Off Valve Indication - Citation 560 Excel Serial No. 560-5001 onwards fitted with the optional APU.

To comply with JAR 25A1141(f)(2) a valve position indicator, for the APU fuel shut-off valve, is required in order to show that it has attained its selected position.

Satisfied by the introduction of the APU fuel shut-off valve not in position selected warning, in accordance with Cessna drawings 6618539 and 8630014.

4.1.8 Cabin Safety/Environmental Control Systems

- (1) Cabin Seat Materials - Citation 560 V Citation 560 Ultra and Citation Encore aircraft up to and including Serial No. 560-5000.

Not applicable to Citation 560 Excel aircraft 560-5001 and onwards satisfied by basic FAA standard.
- (2) Toilet Compartment Ash Tray Citation 560 V Citation 560 Ultra and Citation Encore aircraft up to and including Serial No. 560-5000.

Not applicable to Citation 560 Excel aircraft 560-5001 and onwards refer to ARI 4.1.8 (4)(a).
- (3) Bleed Air System Wing Anti-Ice Overwing Ducts - Citation 560 Encore Serial No. 560-0539 and onwards and Citation 560 Excel Serial No. 560-5001 and onwards.

Satisfied by the introduction of bleed air shields, in accordance with Cessna drawing 6614007.
- (4) Placards - Citation 560 Excel Serial No. 560-5001 and onwards.

To comply with the requirements of JAR25.791 (d), 25.853(e), JAR25.1541, JAR25.1561 (b) and Airworthiness Notice 83 the following placards are to be provided:-
 - a) No Smoking placards. Satisfied by the introduction of no smoking placards, in accordance with Cessna drawings 6619131 and 6619136.
 - b) Fire extinguisher location placard. Satisfied by the introduction of fire extinguisher location placard, in accordance with Cessna drawing 6619131.
 - c) Contrast of the window located passenger information placard. Satisfied by the introduction of window located passenger information placard, in accordance with Cessna drawing 6619131.
- (5) Rear Baggage Stowage - Citation 560 Excel Serial No. 560-5001 and onwards.

Satisfied by the introduction of lavatory compartment smoke detector fire, in accordance with Cessna drawing 6619138.
- (6) Emergency Landing Dynamic Conditions - Citation 560 Excel Serial No. 560-5001 and onwards.

The aircraft seating configuration, is defined by Cessna drawing 4514259 Revision C. Compliance with the injury requirements of JAR 25.785(b) under emergency landing dynamic conditions for this cabin configuration have been demonstrated by Cessna, reference Cessna Interior Substantiation United Kingdom (CAA) Interior Structures Report C-560XL-200 Revision D.

5.2 Compliance With Design Requirements For Certificate Of Airworthiness

Compliance with the design related Airworthiness Notices and CAA Specification is contained within the UK CAA Additional National Requirements - Model 560 Excel Report No. 560XL-02-003 initial issue dated 3 February 2002.

5.3 Compliance with Environmental Requirements

The noise substantiation of the aircraft has been reviewed and compliance with BCAR Section N confirmed. CAA Noise Type Certificate No. 125 Issue 4 was issued on 30 March 2001 for the Cessna Citation 560 Excel.

In addition, an individual CAA Noise Certificate No. 10132 was issued on 25 June 2002 for aircraft serial no.560-5259.

5.4 Compliance with Design Requirements Associated With Operational Approvals

Compliance has been established with the design requirements, which are a pre-requisite to approval of the associated operation. This finding of compliance with the design requirements does not signify that any operational approval has been granted.

1. Temporary Guidance Leaflet No 2 rev. 1: AMJ 20X2 - JAA Guidance Material On Airworthiness Approval And Operational Criteria For The Use Of Navigation Systems In European Airspace Designated For Basic RNAV Operations.

Reference section 2.2 Radio / Navigation Equipment – Honeywell IC-615 w/FMS part no. 7017000-98801 CAA Flight Manual Supplement 10 ECR 41982. Compliance Report 560XL-99-004 Revision B, Avionics System Installation Certification Report PRIMUS 1000 IC-615 Integrated Avionics Computer with Integral Flight Management System.

2. Temporary Guidance Leaflet No 6: Revision 1 Guidance Material On The Approval Of Aircraft And Operators For Flight In Airspace Above Flight Level 290 Where A 300m (1,000 Ft) Vertical Separation Minimum Is Applied.

Basic RVSM Certification addressed by Cessna ECR 040956, which is embodied as basic on aircraft 560-5001 and on, reference CAA Flight Manual RVSM Supplement 13. Model 560 Excel RVSM Compliance Report ECR040956 560XL-99-003.

3. Temporary Guidance Leaflet No 7, Revision 1: Operations With 8.33 Khz Channel Spacing VHF Communication Radios.

Reference section 2.2 Radio / Navigation Equipment - VHF Communication Unit with Mode S Honeywell RCZ-833E part no. 7510700-766.

4. Temporary Guidance Leaflet No 8, Revision 2: Certification Considerations for the Airborne Collision Avoidance System: ACAS II.

Reference section 2.2 Radio / Navigation Equipment - Allied Signal TPU67A TCAS II System CAA Flight Manual Supplement 4. Model 560 Excel Allied Signal CAS-67A Traffic Alert and Collision Avoidance System 560XL-96-022 plus Addendum 1 for Change 7, ECR 044709.

5. Temporary Guidance Leaflet No 12: Certification Considerations for the Terrain Awareness Warning System: TAWS.

Reference section 2.2 Radio / Navigation Equipment - Allied Signal Mark V EGPWS part no. 965-0976-040-213-213 CAA Flight Manual Supplement 6 Cessna ECR 43262. Model 560 Excel Allied Signal Enhanced Ground Proximity / Windshear Warning System Compliance Report 560XL-96-025 Revision B.

5.5 Required (Amendments To) Manuals And Other Documents Including Mandatory Placards

- a. Flight Manual - Citation 560 Excel UK Flight Manual 56XUK-00 dated July 2001, or later approved amendments, plus Supplements as specified in CAA letter 9/24/1/26/35 dated 30 July 2001 as appropriate.
- b. Placards - Refer to ARI 4.1.8 (4) above for details on those additional placards required to satisfy the UK ARIs, plus Section 5.4.2 and Section 6. regarding RVSM approval.
- c. Electrical Load Analysis Compliance Report EL-XL-200 - Appendix H 560XL UK CAA Configuration.

6. Conditions Affecting This Approval

Certain operational approvals require that the aircraft and/or systems comply with specified design requirements. Where this AAN records compliance with those design requirements this shall not be taken as acceptance by the CAA of compliance with the relevant operational requirements, for which further justification may be required.

It should be noted that the GPS Contained within Honeywell IC-615 part no. 7017000-98801 has been issued with a temporary approval under VC01195, which expires on 25 September 2002.

7. Continued Airworthiness

See AAN27332.

8. Survey

This aircraft G-XLMB has been surveyed by the CAA.

In the particular areas examined during the survey the aircraft was found to conform with the standard recorded by this AAN.

9. Issue of Certificate of Airworthiness

The following actions must be completed prior to initial issue of the Certificate of Airworthiness:

- a. All actions and ground test procedures specified by the Cessna Aircraft Company must be completed satisfactorily.
- b. It must be verified that the documents or amendments to documents, and the placards defined under Section 5.5 above are as specified, including any changes specified under Section 8 above.
- c. For G-XLMB a series flight test must be carried out by the CAA within one month of the issuance of the Certificate of Airworthiness, and the outcome must be satisfactory to the CAA.

10. Approval

Subject to the conditions of Section 6 above, this aircraft and any other of the same type completed to the same build standard is approved for the issue of a Certificate of Airworthiness in the Transport Category (Passenger), provided that it conforms with the contents of this AAN, and is operated in accordance with the Flight Manual.

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P Moule
For the Civil Aviation Authority

Date 25 June 2002