Civil Aviation Administration of China (CAAC)

Aircraft Evaluation Group (AEG)

Aircraft Evaluation Report

For

CL-600-2B16 (604 Variant)

(Challenger 605/Challenger 650)

Initial Date: December 18, 2017

Manufacturer: Bombardier Inc.

Revision Record & Approval

No.	Section	Highlight	Date	Prepare	Review	Approve
Initial	All	Initial Evaluation for Challenger 605/650				

For Revision 0:

Prepared and Reviewed by:

XUE Shi Jun
Director, Aircraft Evaluation Division
Flight Standards Department of Civil Aviation Administration of China

Approved by:

HU Zhen Jiang
Director General
Flight Standards Department of Civil Aviation Administration of China

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Foreword

The CL-600-2B16 (604 Variant) series aircraft was original type certificated as transport category airplane by Transport Canada Civil Aviation (TCCA) in Sep 20, 1995. CL-600-2B16 (604 Variant) including following marketing designations:

- Challenger 604 from S/N 5301 to 5699;
- Challenger 605 from S/N 5701 to 5990
- Challenger 650 from S/N 6050 & Subs

The Challenger 605 is the marketing designation for the avionics and aesthetics upgrade to the Challenger 604. The Challenger 650 is the marketing designation for the further avionics upgrade to the Challenger 605.

CL-600-2B16 (604 Variant) Type Certificate was validated by CAAC Airworthiness Department in March, 2002.

The Challenger 604 was considered as grandfather type for CAAC AEG evaluation as no production anymore. The Challenger 605/650 configurations were evaluated by CAAC AEG in October 2016, and follow on evaluation in September 2017, this report was finalized based on the conclusions of above evaluations.

Note: Even CL-600-2B16 (604 Variant) in the same TCDS with CL-600-2B19 (CRJ200), CL-600-2C10 (CRJ700) and CL-600-2D24 (CRJ900), and those types were also validated by CAAC Airworthiness Department, but this report is only for CL-600-2B16 (604 Variant) as the big difference in operational use.

Section 1: Aircraft Type Related Information

1.1 Statement and Explanation:

This section includes the operation related information for Bombardier Challenger 605 and Challenger 650 in CL-600-2B16 (604 Variant) series airplanes based on the following documents of airworthiness approval:

- Type Certificate Data Sheet: TCCA No. A-131 (Issue 55, April 07, 2017)
- Airplane Flight Manual (AFM): PSP 605-1 (REV. 44, Jun 16/2017)
- Airplane Flight Manual (AFM): PSP 650-1 (REV. 9: Jun 16/2017)

The information is provided as an aid to support operational approval but does not replace operational approval. It remains the responsibility of the Principal Inspector (PI) for operators to approve the appropriate operation.

When the aircraft configuration differs from the above stated airworthiness approval, it is the responsibility of the operators and its Principal Inspector (PI) to evaluate those differences and develop the compliance to the relevant requirements.

1.2 CL-600-2B16 (604 Variant) (Challenger 605)

(1) General Information

Item	Type Related Information	For References
1.1 Category	Transport category airplane	§135.45
1.2 Dimensions	Wingspan: 19.61 m (64ft 4in) Length: 20.86 m (68ft 5in) Height: 5.84 m (19ft 2in)	
1.3 Engines	Two General Electric CF-34-3B	
1.4 APU	A Honeywell 36–150(CL)	
1.5 Propellers	N/A	
1.6 Maximum Operating Altitude	Take-off and landing: 10000ft Enroute: 41000ft	§91.441
1.7 Approach category	C	
1.8 Maximum Certified Weights	Maximum Takeoff Weight (MTOW): 21863 kg Maximum Zero Fuel Weight (MZFW): 14515kg	
1.9 Minimum Flight Crew	2 (Pilot and co-pilot)	§135.103
1.10 Maximum	19 (passengers as limited by number of exits	

Item	Type Related Information	For References
Occupants	provided)	
1.11 Baggage/ Cargo Compartment	None	
1.12 Serial Numbers Eligibility	5701 to 5990	

(2) Kind of Operation

Item	Information	CCARs References
2.1 Visual Flight Rules (VFR)	Approved as basic type design	§91.403 §135.151
2.2 Instrument Flight Rules (IFR)	Approved as basic type design	§91.405, 409 §135.171
2.3 Night and over-the-top	Approved as basic type design	§91.407 §135.167
2.4 Icing conditions	Approved as basic type design	§91.425
2.5 Extended Overwater Operation	Ditching approved as basic type design The aircraft has dual HF voice radios as baseline. *For life jacket, life raft and emergency locator transmitter (ELT) installation, it is the responsibility of the operators to show compliance and checked by Principal Inspector (PI).*	
2.6 Extended Range Operation	No ETOPS approval granted	

(3) Communication, Navigation and Surveillance

Item	Information	CCARs References
3.1 ATC transponder	Approved as basic type design	§91.427
3.2 Data Link Communication	Datalink System is available as an option via BA SB 605-23-002	
3.3 Satellite Communication (SATCOM)	The optional equipment provided.	
3.4 RVSM	The airplane is certified capable of RVSM operations	§91.413
3.5 Performance Based Navigation	The aircraft is certified for: RNP 10 (RNAV 10) RNP−2 RNP−4 RNP 1 (Terminal) RNP APCH RNAV−2	§91.413 AC-91-01R1 AC-91-5 AC-91-7 AC-91-8 AC-91-9 AC-91-12

	RNAV−5 / BRNAV RNAV−1 / PRNAV RNP AR Approach certified for airplanes incorporating Service Bulletin 605−34−021.	
3.6 Low visibility operation	The aircraft is certified for Category II ILS approaches.	§91.413 §91 App B AC-91-18 AC-91-03R1 AC-91-15 AC-91-16
3.7 Weather radar	The airplane equipped with a weather radar system.	§91.431 §135.181
3.8 Terrain awareness and warning system（TAWS）	The airplane equipped with an Enhanced Ground Proximity Warning System (EGPWS)	§91.437 §135.159 §135.161
3.9 Traffic Alert and Collision Avoidance equipment	The airplane equipped with TCAS II system Software version 7.1	§91.439 §135.189
3.10 Low altitude windshear system equipment	The function is part of the TAWS system	
3.11 ADS-B	ADS-B OUT incorporated by SB 605−34−030.	AC-91-14

(4) Recording Equipment

Item	Information	CCARs References
4.1 Flight recorder	Baseline part of Type Design includes a CVR retaining 2 hours of recording. Option available for FDR installation.	§91.433 §135.155, 157
4.2 Quick Access Recorder	QAR installation as part of the Type Design.	

1.3 CL-600-2B16 (604 Variant) (Challenger 650)

(1) General Information

Item	Type Related Information	For References
1.1 Category	Transport category airplane	§135.45
1.2 Dimensions	Wingspan: 19.61 m (64ft 4 in.) Length: 20.86 m (68ft 5 in.) Height: 5.84 m (19ft 2 in.)	
1.3 Engines	Two General Electric CF-34-3B	
1.4 APU	Honeywell 36-150 [CL]	
1.5 Propellers	N/A	
1.6 Maximum Operating Altitude	Take-off and Landing: 10, 000ft Enroute: 12497 m (41 000ft)	§91.441
1.7 Approach category	C	
1.8 Maximum Certified Weights	Maximum Takeoff Weight (MTOW): 21863KG Maximum Zero Fuel Weight (MZFW): 14515kg	
1.9 Minimum Flight Crew	2 (Pilot and co-pilot)	§135.103
1.10 Maximum Occupants	19 (passengers as limited by number of exits provided)	
1.11 Baggage/ Cargo Compartment	None	
1.12 Serial Numbers Eligibility	6050 and subsequent	

(2) Kind of Operation

Item	Information	CCARs References
2.1 Visual Flight Rules (VFR)	Approved as basic type design	§91.403 §135.151
2.2 Instrument Flight Rules (IFR)	Approved as basic type design	§91.405, 409 §135.171
2.3 Night and over-the-top	Approved as basic type design	§91.407 §135.167
2.4 Icing conditions	Approved as basic type design	§91.425
2.5 Extended Overwater Operation	Ditching approved as basic type design The aircraft has option HF voice radios as baseline. *For life jacket, life raft and emergency locator transmitter (ELT) installation, it is the responsibility of the operators to show compliance and checked by Principal Inspector (PI).*	
2.6 Extended Range	No ETOPS approval granted	

Item	Information	CCARs References
Operation		

(3) Communication, Navigation and Surveillance

Item	Information	CCARs References
3.1 ATC transponder	Approved as basic type design	§91.427
3.2 Data Link Communication	Optional for datalink purpose available via BA SB650-23-009.	
3.3 Satellite Communication (SATCOM)	The optional equipment provided.	
3.4 RVSM	The airplane is certified capable of RVSM operations	§91.413
3.5 Performance Based Navigation	The aircraft is certified for: RNP 10 (RNAV 10) RNP−2 RNP−4 RNP 1 (Terminal) RNP APCH RNAV−2 RNAV−5 / BRNAV RNAV−1 / PRNAV The RNP AR Approach is activated via BA SB 650-34-009.	§91.413 AC-91-01R1 AC-91-5 AC-91-7 AC-91-8 AC-91-9 AC-91-12
3.6 Low visibility operation	The aircraft is certified for Category II ILS approaches.	§91.413 §91 App B AC-91-18 AC-91-03R1 AC-91-15 AC-91-16
3.7 Weather radar	The airplane equipped with a weather radar system.	§91.431 §135.181
3.8 Terrain awareness and warning system（TAWS）	The airplane equipped with an Enhanced Ground Proximity Warning System (EGPWS)	§91.437 §135.159 §135.161
3.9 Traffic Alert and Collision Avoidance equipment	The airplane equipped with TCAS II system Software version 7.1	§91.439 §135.189
3.10 Low altitude windshear system equipment	The function is part of the TAWS system	

Item	Information	CCARs References
3.11 ADS-B	Baseline part of Type Design	AC-91-14

(4) Recording Equipment

Item	Information	CCARs References
4.1 Flight recorder	Baseline part of Type Design includes: A CVR retaining 2 hours of recording; A Type IA FDR capable of min 25 hours of recording.	§91.433 §135.155, 157
4.2 Quick Access Recorder	QAR available via STC VSTC0421?	

Section 2: Pilot Type Rating and Qualification Specification

2.1 Statement and Explanation

This section is the formal notification that CAAC AEG has conducted a Flight Standardization Board (FSB) evaluation for Bombardier Challenger 605 and Challenger 650 in CL-600-2B16 (604 Variant) airplane based on the Operational Evaluation Report published by TCCA, which specifies the pilot type rating, training, checking, and currency specifications for the flight crews.

Hereby, the provisions in this section can be used, as the basis, by Chinese operators to develop their pilot qualification and training program for above airplanes.

Alternate means of compliance to the requirements of CCAR 61, 91, 135, 121 (as applicable) other than as specified in the provisions of this section, should be approved by Flight Standards Department of CAAC. If alternate compliance is sought, operators will be required to establish that proposed alternate means provide an equivalent level of safety to the provisions of this section, and analysis, demonstrations, proof of concept testing, differences documentation, or other evidence may be required.

Find TCCA OE Report here:
https://www.tc.gc.ca/eng/civilaviation/standards/commerce-3779.htm

2.2 Pilot Type Rating and Licence Endorsement

Upon the CAAC AEG evaluation, the Pilot Type Rating for Bombardier Challenger 605 and Challenger 650 in CL-600-2B16 (604 Variant) airplane is listed as following:

Manufacturer	Aircraft Type	Pilot Type Rating
Bombardier Inc	CL-600-2B16 (Including Challenger 604, Challenger 605 and Challenger 650)	CL64

***Note: Even** Challenger 604 is considered as grandfathered, but as shares the same pilot type rating with Challenger 605 and Challenger 650, it is also listed in above table.*

License endorsement:

"CL64" for getting a type rating from Challenger 604, Challenger 605 or Challenger 650, and checking records should be shown for the specific airplane type.

2.3 ODR and MDR

Operator Difference Requirement (ODR) and Master Difference Requirement (MDR) tables for “Challenger 605” and “Challenger 650” have been given as following:

MDR Table

CL-600-2B16 (604 Variant)		FROM AIRPLANE		
		Challenger 604	Challenger 605	Challenger 650
TO AIRPLANE	Challenger 604	N/A	C/B/A (*2)	C/B/A
	Challenger 605	C/B/A (*2)	N/A (*1) (*2) (*3)(*4)	B/B/A (*2) (*3)
	Challenger 650	C/B/B	B/B/B (*2) (*3)	N/A (*3)

**1: B/B/B for Challenger 605 for introduction of the 2013 Avionics Upgrade.*
**2: The existing in-service Challenger 605 incorporated Rockwell Collins Proline 21 avionics upgrades via Service Bulletins, which are marketed as the Challenger 605(SB), and the difference levels as follows:*

Challenger 604 to Challenger 605(SB): C/B/B
Challenger 605 to Challenger 605(SB): B/B/B
Challenger 605$^{(SB)}$ to Challenger 604: C/B/A

Challenger 605$^{(SB)}$ to Challenger 605: B/B/A

**3: The differences levels of RNP AR operation for Challenger 605$^{(SB)}$ and Challenger 650 is D/D/D.*

**4: For HUD/EFVS installed on a Challenger 605, additional training, checking and currency required as specified.*

Sample ODR tables provided as following:

- ODR Tables: Challenger 604 to Challenger 605
- ODR Tables: Challenger 605 to Challenger 604
- ODR Tables: Challenger 604 to Challenger 605(SB)/650
- ODR Tables: Challenger 605(SB)/650 to Challenger 604
- ODR Tables: Challenger 605 to Challenger 605(SB)/650
- ODR Tables: Challenger 605(SB)/650 to Challenger 605

Note: The ODR tables are available by request to Bombardier.

2.4 Specification for Training

The Type Rating Training Curriculum for CL-600-2B16 (604 Variant) recommended by Bombardier Inc. is provided as following, and has to be considered as a minimum:

- BAT-ISD CL600_2B16 Flight Training Syllabus (Doc No. CL666-08.17 as revised)
- BAT ISD CL600_2B16 Specialty Course (Doc No: CL666-08.18 as revised)
- BCT ISD CL600-2B16 HUD/EFVS Specialty Course (Doc No. CL605-08.37 as revised)

Note 1: *BAT-ISD CL-600-2B16 Flight Training Syllabus including follow training courses, operator may choose the proper course as needed:*

- *Challenger 605/650 Initial type rating training*
- *Differences training - Challenger 605 to Challenger 650*
- *Differences training - Challenger 650 to Challenger 605*
- *Challenger 605 Recurrent – PIC*
- *Challenger 605 Recurrent – SIC*
- *Challenger 650 Recurrent—PIC*
- *Challenger 650 Recurrent—SIC*

Note 2: *BAT ISD CL-600-2B16 Specialty Course is developed for Challenger 605 Advanced Avionics Challenger/650 initial RNP AR training.*

Note 3: *The pre-requisite of each training course included in the syllabus, for pilot not satisfied the requirements, additional training may requested.*

Note 4: *The CATII training not included in the above training course, which may request additional training and should be approved by POI.*

Note 5: *Above Training Curriculums are available by request to Bombardier Inc.*

The following aircraft systems and/or procedures that must receive special emphasis in the Training Program:

For both Challenger 604 and Challenger 605:

a) Recovery from unusual attitudes;

b) Handling qualities and procedures during recovery from an upset condition (e.g., wake vortex encounter);

c) Operation of aircraft in icing environments including super cooled liquid droplet (SLD) events;

d) Low Energy Awareness Training;

e) High Altitude Stall Recovery;

f) Engine Failure/Malfunction Recognition Training;

g) Roll control during multiple hydraulic system failure, crosswind landing and rollout, and zero-flap landing.

Additional items for Challenger 605:

Systems Integration Training:

a) Display Control Panel (DCP)

b) Cursor Control Panel (CCP)

c) Integrated Flight Information System [IFIS]

Flight Training (Level C or D Flight Simulator and/or aircraft):

a) Operations with inoperative Auto throttle

b) Flight Control System Jam procedures

Additional items for Challenger 605(SB) and Challenger 650:

a) Procedures for Airway to Airway intercepts using the FMS 6200

b) Accepted abbreviations for textual inputs from pilot to FMS for CPDLC communications.

c) Limitations on the use of SmartRunwayTM and SmartLandingTM (RAAS) during normal and abnormal operations.

d) Limitations on the use of SVS during flight and approaches

e) ½ bank application during single engine takeoffs (Heading vs LNAV)

For RNP AR training of Challenger 605(SB) and Challenger 650:

a) Required equipment for RNP AR approaches (MEL review and inflight considerations)

b) Missed approach procedures on RF legs

c) Manually flown approaches and missed approaches

d)Temperature compensation

e) Evasive maneuver in the event of a dual FMS failure

f) Contingency procedures in case of loss of RNP capability

g) Wind effects such as wind shear or strong low level winds during final approach and during a Turn

h) Effect of reducing flap angle, bank angle, decreasing or increasing speed,

i) Application of CRM and threat assessment for RNP-AR operations

For HUD/EVS TRAINING - GENERAL

a) Crew coordination;
b) Crew briefings and callouts;
c) Duties of flying and non-flying pilots; and
d) EICAS messages and use of QRH and checklists applicable to HUD operations.

For HUD training of Challenger 605/650:

a) HUD unique symbology with the autopilot and flight director both on and off, i.e. FPS, flight path acceleration cue, speed error tape, low and high speed cues, flight mode annunciator, use of non-conformal symbology including the use of the FPS to recognize and recover from flight at high angles of attack, and excessive pitch chevrons.,
b) Use of the AOA Limit indicator and the FPS for approach to stall awareness and its use during a stall recovery.
c) Use of the unusual attitude display, the aircraft reference symbol, the change to a normal display, and when to transition to the FPS during recoveries.
d) Transitioning to Head Down Displays (HDDs) and the inclusion of HDDs in the crosscheck including EICAS displays and other cockpit indications.
e) Avoidance of fixation on HUD display and symbology elements, particularly during the landing flare manoeuvre and appropriate conditions to turn OFF the HUD display.
f) Use of HUD in conjunction with the sun-visor
g) Use of the takeoff reference box and the aircraft symbol for the pitch rotation target on takeoff and go-around,
h) Use of the glideslope reference line and FPS for visual approaches,
i) Cross-wind landing technique, and
j) Proper HUD brightness settings for different ambient conditions and approach lighting systems.

For EFVS training of Challenger 605/650:

a) Transition from EFVS imagery to non-EFVS, visual conditions. (Maximum use should be made of videos of actual HUD EFVS approaches. The relative luminosity between IR imagery and that of approach lighting systems should be identified);
b) The effects of lighting conditions and crosswinds on EFVS symbology and Flight Path Symbol (FPS);
c) Visual anomalies such as “noise”, “blooming”, and rain;
d) Appropriate use of “Clear” switch;
e) Importance of the “design eye position” in acquiring the proper EVS image;
f) Where PF should look to acquire the required visual references (i.e. approach lights);
g) Importance of cross-checking the EFVS instrumentation presentations against the EFVS visual scene presentation to enable the pilot to recognize malfunctions of the EFVS, navigational guidance information, and improper presentation of elements in the visual scene during an approach;

h) Use of autopilot and auto-throttle coupled approaches allowing for better pilot monitoring of the EFVS image;
i) Effective and appropriate monitoring by the PNF of EFVS imagery presented on MFD.
j) Proper use and setting of HUD contrast and EFVS brightness controls for various ambient conditions;
k) Crew briefings and callouts with emphasis on the duties of PF and PNF;
l) Importance of the “design eye position” in acquiring the proper EFVS image;’
m) Manual and Auto Calibration functions; and
n) Use of the EFVS “Clear” switch.

2.5 Specification for Checking

As required by CCAR Part 61 and 135.

For RNP AR operations, initial or recurrent checking could be conducted in either Challenger 605 (SB) or Challenger 650.

For HUD operations, the checking should complete within 30 days subsequent to completion of HUD conversion training, and the PM should also complete a checking on HUD related PM duties. The following manoeuvres should be evaluated as a minimum:

a) Engine failure on take-off and departure;
b) Instrument approach and missed approach OEI; and
c) Failure of HUD during instrument approach.

In addition to above checking requirements, PICs should complete line indoctrination employing the HUD after initial training, and should include at least three HUD assisted takeoffs, one visual approach, and two instrument approaches in VMC.

For EFVS operation in VMC for enhanced situational awareness, no checking is required, but PICs should complete line indoctrination employing the EFVS after initial training, and should include at least three EFVS assisted takeoffs at night, one visual approach at night, and two instrument approaches in VMC.

2.6 Specification for Currency

As required by CCAR Part 61 and 135.

For RNP AR operations, at least one RNP AR approach to either a missed approach or landing within the preceding six months.

For HUD/EFVS operations, at least three takeoffs, approaches and landings using the HUD/EFVS in the airplane or full flight simulator with day and night visual displays within the previous 90 days.

The EFVS currency requirement can be credited to the HUD currency requirements.

2.7 Specification for Flight Simulation Training Devices

As qualified per CCAR Part 60.

For satisfied Challenger 604, Challenger 605 and Challenger 650 training, checking and currency requirements, the acceptable training device should be one that replicates the functionality, operation and installation of the Collins ProLine system as appropriate.

Full Flight Simulator for RNP AR pilot training, checking, and currency must be approved for RNP AR approaches.

Initial flight training for HUD/EFVS requires the use of a level C (or higher) full flight simulator equipped with Rockwell Collins 6605 HUD/EFVS with day and night visual displays and able to display a suitable IR image.

Section 3: Maintenance License and Training Specification

3.1 Statement and Explanation

This section is the formal notification that the CAAC AEG has conducted Maintenance Training Evaluation (MTE) for Challenger 605 and Challenger 650 in CL-600-2B16 (604 Variant) airplane based on the Training Need Analysis (TNA) process of Bombardier Inc.

Thus, the provisions in this section can be used, as the basis, by Chinese operators to develop their maintenance personnel qualification and training program for the above stated model airplanes.

Alternate means of compliance other than specified in the provisions of this section must be approved by Flight Standards Department of the CAAC.

3.2 Maintenance License Endorsement

Upon the Maintenance Training Evaluation (MTE) evaluation, the maintenance license endorsement for Challenger 605 and Challenger 650 in CL-600-2B16 (604 Variant) airplane is listed as follows:

Manufacturer	Aircraft Type	License Endorsement
Bombardier Inc.	CL-600-2B16 (Including Challenger 605 and Challenger 650)	CL64

3.3 Specification for Training

The following is a Type Training course proposed by Bombardier for Challenger 605 and Challenger 650 in CL-600-2B16 (604 Variant) airplane and it has to be considered as a baseline by operators and training provider in developing their maintenance training program

- BAT-ISD CL600_2B16 Maintenance Training Syllabus (Doc No. CL666-14.12 as revised)

Note 1: *The above training syllabus includes both theoretical and practical training for the following categories:*

- *Mechanical and Electrical (ME)*
- *Avionics (AV)*

Note 2: *For Airplane options, it is the operator's responsibility to compare the detail differences based on their actual configurations; and, the differences training may be conducted by the operator or its contracted maintenance organization.*

Note 3: *The above training syllabuses are available by request to Bombardier Inc..*

Section 4: Master Minimum Equipment List

4.1 Statement and Explanation

This section is the formal notification that CAAC AEG has conducted Flight Operation Evaluation Board (FOEB) evaluation for Bombardier Challenger 605 and Challenger 650 in CL-600-2B16 (604 Variant) airplane based on the Master Minimum Equipment List (MMEL) of Bombardier Business Jet CL-600-2B16 (604 Variant) approved by TCCA, which outlines the items of equipment that may be inoperative and yet maintain an acceptable level of safety by appropriate conditions and limitations.

Hereby, the MMEL and its future revisions approved by TCCA can be used, as the basis, by Chinese operators to develop their Minimum Equipment List (MEL) for above airplane.

Find TCCA MMEL here:

http://wwwapps2.tc.gc.ca/Saf-Sec-Sur/2/MEL-LEM/m_e_l_s_r.aspx?lang=eng&m=Bombardier%2fCanadair

Also available on the Bombardier Customer Information Centre website:
https://customer.aero.bombardier.com/cic/public/

4.2 CAAC Supplemental

Not applicable.

Section 5: Schedule Maintenance Requirements

5.1 Statement and Explanation

This section is the formal notification that CAAC AEG has conducted Maintenance Review Board (MRB) evaluation for Bombardier CL-600-2B16 (604 Variant) airplane based on the Maintenance Review Board Report (MRBR) of Bombardier “Challenger 605/650” mode CL-600-2B16 (604 Variant) aircraft approved by TCCA, which outlines the initial minimum maintenance requirements to be used in the development of an approved operator’s maintenance program for the airframe, engines, systems and components.

Note: *MRB Report is included in the Time Limits / Maintenance Checks Section 3*

Hereby, the MRBR and its future revisions approved by TCCA can be used, as the basis, by Chinese operators to develop their maintenance program for above airplanes.

MRBR distribution:
Available on the Bombardier Customer Information Centre website:
https://customer.aero.bombardier.com/cic/public/

5.2 CAAC Supplemental

Not applicable.

Section 6: Operational and Continued Airworthiness Instructions

6.1 Statement and Explanation:

This section is the formal notification that CAAC AEG has conducted evaluation of the operational and continued airworthiness instructions for Bombardier Challenger 605 and Challenger 650 in CL-600-2B16 (604 Variant) airplane based on the relevant policies and procedures of Bombardier Inc.

Hereby, the Operational & Continued Airworthiness Instructions document listed in the attachment was found acceptable by CAAC AEG, and will give the necessary guidance for properly operating and maintaining the Bombardier CL-600-2B16 (604 Variant) airplane within the approved operating conditions and limitations.

This acceptance may not assure the accuracy and applicability of the content in each document, it is the aircraft owner's or operator's responsibility to report any defect or discrepancy in the documents to the aircraft manufacturer, or report to CAAC AEG by mail box: aeg@caac.gov.cn.

Operational & Continued Airworthiness Instructions distribution:

By Bombardier by Hard copy, CD/DVD and also available online (www.cic.bombardier.com).

6.2 List of Operational and Continued Airworthiness Instructions for Challenger 605

Doc. Ref.	Manual	Revision/Date
CH 605 DDG	Dispatch Deviation Guide	As revised
CH 605FM FCOM1	Flight Crew Operating Manual 1	As revised
CH 605FM FCOM2	Flight Crew Operating Manual 2	As revised
CH 650FM QRH1	Quick Reference Handbook	As revised
CH 605FM QRH2	Quick Reference Handbook	As revised
CH 605 FPCCM	Flight Planning and Cruise Control Manual	As revised
CH 605 WBM	Weight and Balance Manual	As revised
CH 605 TLMC	Time Limits and Maintenance Checks	As revised
CH 605 MPD	Maintenance Planning Document	As revised
CH 605 SSM	System Schematic Manual	As revised
CH 605 AMM-SDS	Aircraft Maintenance Manual Part I	As revised
CH 605 AMM	Aircraft Maintenance Manual Part II	As revised
CH 605 NDTM	Non Destructive Testing Manual	As revised
ITEM	Illustrated Tools and Equipment Manual	As revised
SPM	Standard Practices Manual	As revised
SMD	Supplementary Maintenance Data	As revised
CH 605 AIPC	Aircraft Illustrated Parts Catalog	As revised
CH 605 WDM	Wiring Manuals (WM)	As revised
CH 605 WLM	Wiring List Manual	As revised

Note 1: *The acceptance of above manuals is not affected by document reference numbers changed due to customization.*

Note 2: *The CMM is referred as "Supplementary Maintenance Data (SMD)" for all Challenger 604/605/650.*

Note 3: *The following documents were approved by type certification process for Challenger 605 airplane, and must be followed by Chinese operators for operation and maintenance within the approved limitations:*

- *Airplane Flight Manual (AFM)*
- *Airworthiness Limitations (AWL)*
- *Structural Repair Manual (SRM)*

Note 4: *Additionally, Bombardier has also developed following manuals for Challenger 605 airplane, they are not considered as required operational and continued airworthiness instructions, but may be referenced by Chinese operators for proper operation and maintenance of the airplane:*

- *Ground Handling and Servicing Manual (GHSI)*
- *Aircraft Recovery Manual (ARM)*
- *Airport Facilities Manual (AIFM)*
- *Crash Crew Chart (CCC)*
- *Ground Operations Checklist (GOCL)*
- *Maintenance Facilities Manual (MFM)*

Note 5: *Bombardier issues SB as the need arises to quickly transmit of technical information.*

Note 6: *The Engine manuals are developed and distributed by the engine manufacturer; please reference the Engine TCDS for more information.*

Note 7: *For optional equipment, operation information included in AFM supplemental, and ICAs integrated in above manuals, except STC installation will be provided by STC holder specifically.*

Note 8: *Operators may check website (www.cic.bombardier.com) for most current status for above manuals and technical publications.*

6.3 List of Operational and Continued Airworthiness Instructions for Challenger 650

Doc. Ref.	Manual	Revision/Date
CH 650 DDG	Dispatch Deviation Guide	As revised
CH 650 FCOM1	Flight Crew Operating Manual 1	As revised
CH 650 FCOM2	Flight Crew Operating Manual 2	As revised
CH 650 QRH-1	Quick Reference Handbook	As revised
CH 650 QRH-2	Quick Reference Handbook	As revised
CH 650 FPCCM	Flight Planning and Cruise Control Manual	As revised
CH 650 WBM	Weight and Balance Manual	As revised
CH 650 TLMC	Time Limits and Maintenance Checks	As revised
CH 650 MPD	Maintenance Planning Document	As revised
CH 650 SSM	System Schematic Manual	As revised
CH 650 AMM-SDS	Aircraft Maintenance Manual Part I	As revised
CH 650 AMM	Aircraft Maintenance Manual Part II	As revised
CH 650 ITEM	Illustrated Tools and Equipment Manual	As revised
SPM	Standard Practices Manual	As revised
SMD	Supplementary Maintenance Data	As revised
CH 650 AIPC	Aircraft Illustrated Parts Catalog	As revised
CH 650 WDM	Wiring Manuals (WM)	As revised
CH 650 WLM	Wiring List Manual	As revised

Note 1: *The acceptance of above manuals is not affected by document reference numbers changed due to customization.*

Note 2: *The CMM is referred as "Supplementary Maintenance Data (SMD)" for all Challenger 604/605/650.*

Note 3: *The following documents were approved by type certification process for Challenger 650 airplane, and must be followed by Chinese operators for operation and maintenance within the approved limitations:*

- *Airplane Flight Manual (AFM)*
- *Airworthiness Limitations (AWL)*
- *Structural Repair Manual (SRM)*

Note 4: *Additionally, Bombardier has also developed following manuals for Challenger 650 airplane, they are not considered as required operational and continued airworthiness instructions, but may be referenced by Chinese operators for proper operation and maintenance of the airplane:*

- *Ground Handling and Servicing Manual (GHSI)*
- *Aircraft Recovery Manual (ARM)*
- *Airport Facilities Manual (AIFM)*
- *Crash Crew Chart (CCC)*
- *Ground Operations Checklist (GOCL)*
- *Maintenance Facilities Manual (MFM)*

Note 5: *Bombardier issues SB as the need arises to quickly transmit of technical information.*

Note 6: *The Engine manuals are developed and distributed by the engine manufacturer; please reference the Engine TCDS for more information.*

Note 7: *For optional equipment, operation information included in AFM supplemental, and ICAs integrated in above manuals, except STC installation will be provided by STC holder specifically.*

Note 8: *Operators may check website (www.cic.bombardier.com) for most current status for above manuals and technical publications.*

Section 7: Other Evaluation Items

7.1 Forward Observer Seat

Based on the supporting analysis documents provided by Bombardier and reference to the determination made by the FAA, CAAC AEG concluded that the Forward Observer's Seat Installation Model C443216-501 of Bombardier CL-600-2B16 (604 Variant) airplane is considered to have met the requirements of AC-121-28.

Modifications to the above facilities from the original specifications will need approval by the responsible Principle Inspector (PI) of CAAC, additional analysis, demonstrations, proof of concept testing, differences documentation, or other evidence may be required.

7.2 Flight Crew Sleeping Quarters

Not applicable.

7.3 Electronic Flight Bag (EFB)

For CL-600-2B16 (604 Variant), Electronic Charts are integrated functions of the Collins IFIS 5000, and already subject airworthiness approval. Even though they are typical EFB applications, there is no need to special operational approval.

Note 1: *The standard aircraft configuration contains the Enhanced Map Overlays and Electronic Charts functions. Graphical Weather is offered as customer selected option.*

Note 2: *The flight crew should be trained to use the additional features provided by the IFIS and as a minimum, be able to pull up the airport depiction charts, SID's, Arrival Procedures, and approach charts using the EFB electronic chart function. For aircraft with the optional weather functions, pilots should master the graphic weather depiction function and be able to obtain METARS and TAF's for origin, destination, and alternate airports.*

Note 3: *Given the multiple permutations of display options available, and that these options will be dependent on the customer selected options, operators should establish SOP's for default configurations for departure and arrival.*

Note 4: *Flight Training Devices, Simulators, and or Part Task Trainers may be used for initial training and checking provided that the device accurately duplicates the recommended FMS and EFB functions. Training done in the airplane may be accomplished either in actual flight conditions or on the ground provided all necessary avionics equipment is ON and operational.*

7.4 Emergency Evacuation Demonstration

Not applicable.

Appendix: CAAC AEG Team and Point of Contact

A.1: CAAC AEG Team (Initial Evaluation):

Mr. Lyu Xin Ming	Deputy Director General, Flight Standards Department
Mr. Xue Shi Jun	Director, Aircraft Evaluation Division, Flight Standards Department
Xie Bao Liang	Director, AEG Office of Shanghai Aircraft Airworthiness Certification Center
LI Xiao Lei	Engineer, AEG Office of Civil Aviation Science and Technology Center

A.2: Bombardier Point of Contact (Initial Evaluation):

Mr. Zhidan Wang	Chinese liaison, Airworthiness Core Airworthiness
Ms. Cherrie Xu	Supervisor, Regulatory Affair Bombardier China