



AVICAST Aviation Engineering Solutions

艾维高斯航空工程设计解决方案

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Company Introduction / 公司介绍

AVICAST Inc. was founded under the leadership of AVIC International in 2013, to create an aerospace engineering centre of excellence, striving for continuous innovation, providing a platform and necessary tools for a global collaboration and interconnection of key industry players. The company works with leading experts from Bombardier, Boeing and airworthiness institutions.

AVICAST Inc. 是中航国际珠海公司旗下的一家分公司，于 2013 在加拿大多伦多成立，旨在建立一个为航空制造业服务的工程技术资源平台，以满足不断的创新对技术支持的需求。公司的工程专家具有在庞巴迪，波音以及适航局长期任职的背景。

With a primary mandate to lead the consulting and engineering initiatives involving the Chinese Commercial and General Aviation industry, AVICAST provides global engineering driven solutions that foster engineering driven supply chain and support the aviation industry needs by addressing critical issues that material suppliers and hardware manufacturers, as well as OEMs and MROs companies are facing today.

AVICAST 为中国商用和通用航空业中相关企业提供一流的咨询服务。公司采用国际先进的工程技术解决方案，来帮助改善航空工业关键性环节中，例如供应链和材料供环节中的问题，以及飞机制造和发动机制造和维修服务过程中会面对的一些问题。



Value of Cooperation / 合作成效

Our engineers specialize in design, stress analysis and certification for aircraft programs in development as well as for the modification and repair of existing aircraft fleets. Throughout the accomplishment of various projects, our experts have gained a strong reputation of being a dynamic, flexible, innovative and committed engineering organization and as such is well suited to undertake the technical requirements from Aircraft and Aero-engines OEMs.

我们的工程师擅长设计，应力分析和飞机项目的认证，以及修改和维修现有的飞机机队。在完成多个项目的过程中，我们的专家以富有活力、灵活、创新和敬业的工程组织形象赢得了良好的声誉，因此非常适合为飞机以及航空发动机原始设备制造商的技术需求提供咨询服务。

Our team has extensive experience in Aerostructure, from conceptual design to analysis of complex structural assemblies. Our engineering team has worked on various aircraft programs; Bombardier CRJ / C Series / Global Programs, Airbus 320 / 320 neo / 340, Boeing 767 / 777, ATR 72. Our team is flexible and has the knowledge to enable us to work on various aircraft platforms.

我们的团队在航空结构方面有丰富的经验，从概念设计到复杂结构组件的分析。我们的工程团队参与了各种飞机项目；庞巴迪 CRJ/C 系列/Global 项目，空客 320/320 neo/340，波音 767/777，ATR72。我们的团队的灵活性和经验能够在各种飞机平台上提供质询工作。



Design and Manufacturing Engineering / 设计和制造工程方面的专业知识

AVICAST has extensive technical resources in the North American aircraft manufacturing industry and can provide its customers with the different technical support based on their various needs.

AVICAST 在北美航空器制造业内拥有广泛的技术资源，能为我们的客户提供其所需的不同的技术支持。

With more than 200 experts specialized in Structural Engineering, System and Door design, we bring the value of a leading Engineering Firm & TCCA DAO specializing in development, modification and repairs of new and in-service aircrafts. We have TCCA DAO + EASA CVEs + FAA DERs capabilities, as well as AS9100D Quality Management system in progress.

我们拥有 200 多名专业从事结构工程、系统和舱门设计的专家，是一家行业领先的专业从事新型和现役飞机开发、改装和维修的公司。我们拥有 TCCA DAO + EASA CVEs + FAA DERs / TCCA DAO + EASA CVEs + FAA DERs 能力，以及正在进行的 AS9100D 质量管理体系。

The main areas of expertise revolve around:

- Aerostructures - Aircraft modifications [Structure, Cabin, Connectivity, Cargo] - Repairs - Certification
- Hardware standardization and BOM optimisation
- Aircraft production processes and Material specification
- Quality System procedures and Quality Manuals
- Supplier evaluation methods and Supplier Quality requirements
- Quality Assurance Requirements, Lab testing
- Advanced Manufacturing Methods
- Certification and airworthiness procedures
- Lean Manufacturing procedures

我们的专业领域为：

- 航空结构 - 飞机改装[结构，机舱，连接，货物] - 维修 - 认证
- 零部件标准化与物料清单优化
- 飞机制造工艺与物料规范
- 质量系统程序与质量手册
- 供应商评估方式是与供应商资质认证需求
- 实验室试验质量保证需求

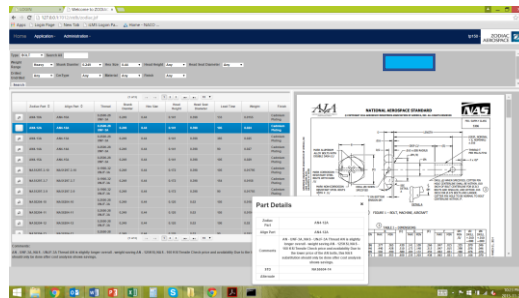
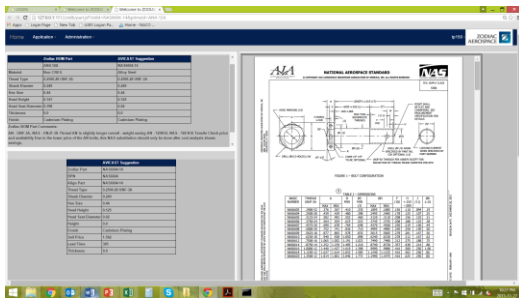
- 先进制造方法
- 适航取证流程
- 精益生产流程

AVICAST also possesses a cutting-edge engineering database that covers hands-on engineering knowhow capitalized in a comprehensive master database with user-defined selection criteria in support of Design, Manufacturing and Quality Departments.

AVICAST 同时也具有前沿的工程数据库，其中收纳了行业内顶尖飞机制造专家的实际操作知识与经验，可以通过按用户量身定做的选用标准，为其工程团队的设计，制造，以及质量管控部门提供有利支持。

Our engineers and experts provide support for the creation of Standard Manuals addressing proprietary hardware obtainable from multi-sources. We also provide the OEMs' design and manufacturing department with an engineering database for systematic hardware selection and part substitution processes.

我们的工程师与专家可以为建立企业标准来对应供应商的自设件号，为实现零件多货源采购提供帮助。同时，我们也可以通过工程数据库为 OEM 的设计和制造部门提供系统的零部件选用和零部件替代工艺。



Aeronautical Engineering & Certification / 航空工程 & 飞机认证专业知识综述

The company provides multidisciplinary expertise spanning across broad range of aircraft design and modification experience on normal, commuter, and transport category fixed wing, and amphibian aircraft and small and transport category rotorcraft.

涵盖了飞机设计和改型的多学科专业知识，经验广泛，针对客运和运输类和水陆两用和小型固定翼飞机和运输类旋翼机都有相关经验。

Our experts have worked with a broad base of aircraft certification customers in Canada and the United States. They have developed long term aeronautical engineering / certification relationships with a number of organizations including Viking (since 2005), Pratt and Whitney Canada (since 2014), Aero-Dyne Repair Services Ltd. (since 2000), and Basler Turbo Conversions (since 2008).

专家们曾在加拿大和美国的飞机认证过程中建立了广泛的客户基础和长期的航空工程和认证机构的关系，包括 Viking（2005 年），普惠加拿大（2014 年）、航空维修服务有限公司达因（2000 年），和巴斯勒涡轮转换（2008 年）。

Our experts have built extensive experience with design modifications to large aircraft operating in Transport and Restricted Categories (including special mission and firefighting / air tanker aircrafts) .

我们的专家在运输和限制类别的大型飞机（包括特殊任务机和消防/空中加油机）有着丰富的经验

They also enjoy extensive continuing airworthiness support experience in mechanical systems, interiors, flight controls, structural and electrical / avionics systems areas including support provided for the DHC-1 through to DHC-7 inclusive de Havilland legacy aircraft type certificates. This experience includes consideration of corrosion effects of saltwater water operations (including saltwater operations).

他们还在机械系统、内饰、飞行控制、结构和电气/电子系统领域里广泛的持续适航支持经验，包括为 DHC-1 到 DHC-7 型号认证提供支持。这方面的经验包括考虑水的腐蚀作用或近水作业（包括盐水作业）。

Current experience with continuing airworthiness support of structural and mechanical system areas, including the main landing gear, of the Viking / Canadair (Bombardier) amphibious aircraft.

结构和机械系统领域适航性的持续支持，包括北欧 Viking/ Canadair (Bombardier)水陆两栖飞机的主起落架。

The experts hold a broad experience in:

专家在以下方面有着丰富的经验:

- Advanced structural assessment including external load development, loading spectrum development, fatigue analysis, and damage tolerance assessment, and in composite structure / 先进的结构和复合材料结构评估，包括外部负载研发，载荷谱研发，疲劳分析和损伤容限评估。
- Installation design of floats (including amphibious floats) / 浮筒的安装设计（包括两栖浮筒）
- Flight control system modifications / 飞行控制系统更改
- Mechanical systems including hydraulic systems / 机械系统包括液压系统

- Preparation of technical and operating information including / 技术和运营信息准备:
 - ✓ Development of maintenance information and instructions for continued airworthiness / 维修信息和指导的开发以保证持续适航。
 - ✓ Development of operating information (flight manuals and supplements) / 营运资讯的开发（飞行手册及补充）
 - ✓ Development of system and structural airworthiness limitations / 系统及结构适航限制的研发。

- Directly related experience with design and certification of design changes to, and continuing airworthiness of the type design of the Viking / Canadair (Bombardier) water bomber and transport category and commuter category aircraft including the following / 设计和设计变更认证的直接相关经验，并对 Viking/ Canadair (Bombardier) 型号设计持续适航有直接经验，相关机型包括以下:
 - ✓ Experience with the development of airtanker aircraft including the Lockheed Electra (188A/C) and the BAe AVRO 146 Series RJ85 / RJ85A / 加油机开发经验，包括洛克希德伊莱克特拉（188A / C）和 BAE Avro146 系列的 RJ85 / rj85a。
 - ✓ Feasibility study for a Bombardier DHC-8-100 Airtanker / 庞巴迪 dhc-8-100 加油机的可行性研究
 - ✓ Special mission and airtanker aircraft loading spectra development and fatigue assessment / 特殊的使命和空中加油机的飞机载荷谱的研发和疲劳评估

- ✓ Design and certification of straight and amphibious float installations / 直线及两栖浮动装置的设计和认证
- ✓ Rosemount Aerospace Indicated Angle of Attack System Installation on CL-215 aircraft / CL215 攻角系统的安装
- ✓ Initial Consideration of Dual IAOA Indicator Installation on CL-215T and CL-415 aircraft / cl-215t 和 cl-415 飞机的双 IAOA 指示器安装的初步考虑
- ✓ Sagem Integrated Cockpit Display System installation on CL-215-6B11 (CL-215T Variant) / CL-215-6B11 上的萨基姆座舱综合显示系统的安装
- ✓ Upgraded (Replacement) Generators on the CL-215-1A10 / CL-215-1A10 发电机的升级（更换）
- ✓ Transponder Upgrade on CL-215-1A10 aircraft / CL-215-1A10 对讲机升级
- ✓ Audio System Upgrades (Various) on CL-215-1A10 aircraft / CL-215-1A10 音频系统升级
- ✓ Hydraulic Reservoir Repair Design for CL-215-1A10 aircraft / CL-215-1A10 机液压水库修复设计
- ✓ FLIR System Installation on CL-215-1A10 aircraft / CL-215-1A10 的 FLIR 系统安装
- ✓ Repair Design Review L/H Side Fuselage Skin Crack at FS 388.00 on CL-215 aircraft / FS 388 CL-215 飞机 L/H 侧机身蒙皮裂纹修复设计审查
- ✓ D-Ring Installation (Upper Fuselage) on CL-215-1A10 aircraft / 在 cl-215-1a10 飞机（机身上部）的 D 环安装



Expertise in Product Development/产品开发能力:

AEROSTRUCTURE / 航空结构

- Doors / 门
 - ✓ Emergency Exits (Pax & Overwing Doors) & Cargo Doors / 紧急出口 (Pax & 翻门) 和货物门
 - ✓ Structure, Mechanism & Actuating Systems / 结构, 机构和驱动系统
- Fuselage & Fairings / 机身和整流罩
 - ✓ Cockpit / 驾驶员座舱
 - ✓ Center Fuselage / 中机身
 - ✓ Wing to fuse Fairing / 机翼到机身的整流罩
 - ✓ Aft Fuselage / 后机身
 - ✓ Metallic & Composite / 金属和复合材料
- Wings & Control Surfaces / 机翼和控制面
 - ✓ Flap & Slats / 襟翼和缝翼
 - ✓ Actuators, Tracks, Control surface / 驱动器, 轨道, 控制面

SYSTEM INSTALLATION / 系统安装

- EWIS & AVIONIC INSTALLATION / EWIS 和航电安装
 - ✓ Avionic Racks / 航电轨道
 - ✓ ELA, Wiring Diagram / ELA 和铺线图
- HYDRAULIC & WATER / WASTE SYSTEMS / 液压和水 / 污水系统

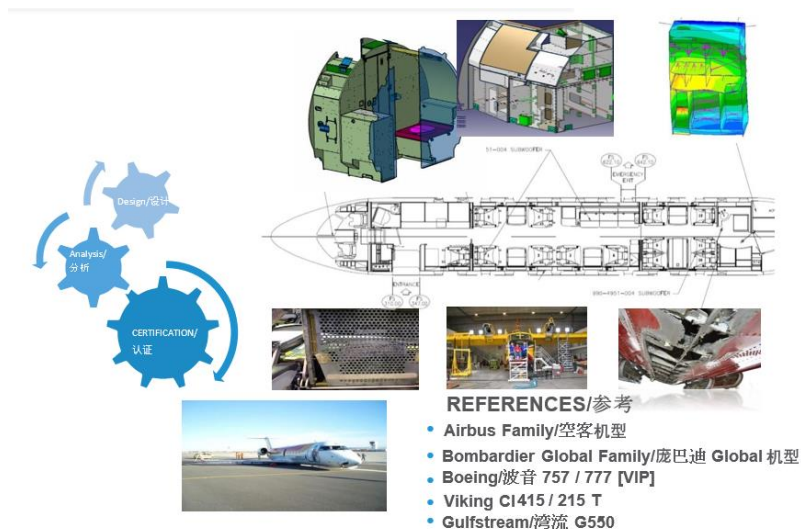


CABIN MODIFICATION / 机舱修改

- Interiors / 内饰
 - ✓ VIP, Cabin Refurbishment/客舱翻新, LOPA
 - ✓ Structure, Flammability & Pull Test Plan/结构, 可燃性和拉力测试计划
- Connectivity / 连接
 - ✓ Antenna Installation/天线安装
 - ✓ Cabin Management System/客舱管理系统
 - ✓ ADS-B
 - ✓ Electrical & Avionic installation / 电气和航空电子安装

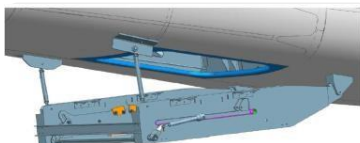
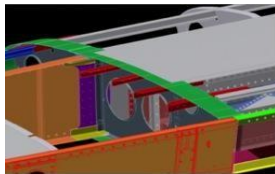
REPAIRS / 维修

- AOG support 24/7 / AOG 支持 24/7
- Aircraft Damage Assessment / 飞机损坏评估
- Cut Lines & Repairs Solution Definition / 切割线和维修解决方案定义
- Design Validation & Approval of repairs / 设计验证和维修批准
- Major Repair / 主要维修
 - ✓ Installation of Pre- defined Solution / 安装预定义的解决方案
- Service Repair Manual (SRM) Development / 服务维修手册 (SRM) 研发
 - ✓ SRM Definition & Validation of Modified Aircraft / 对修改飞机的 SRM 定义和验证
 - ✓ Support to OEM in SRM definition / 支持 OEM 对 SRM 的定义



SPECIAL MISSION / 特殊任务

- PAX to Freighter Conversion / 客机转货机
 - ✓ Large Cargo Door / 大货舱门
 - ✓ Floor reinforcement / 地板加固
 - ✓ Class-E Freighter / E 级别货机
 - ✓ Cargo Combi / 货物
- Medical Evacuation / 医疗后送
 - ✓ Incubators installation / 恒温箱安装
 - ✓ Stretchers / Medical Bed / 担架/医疗床 Oxygen System installation / 氧气系统安装
- Search & Rescue / 搜救 / ISR
 - ✓ Antenna Installation / 天线安装
 - ✓ Radome & Scanner / 天线罩和扫描仪
 - ✓ Camera Installation / 相机安装
 - ✓ Air Operable Door / 空气操作门



REFERENCES/参考

Bombardier CL-604(Search/Rescue)/庞巴迪 CL-604(搜救)
Beechcraft King Air 350(ISR)

Bombardier CL-601(Medevac)/庞巴迪 CL-601(医疗后送)
ATR-72(Pax to Freighter)/(客机转货机)

MAINTENANCE ENGINEERING / 维修工程

- Tool Kit Development / 工具研发
 - ✓ Instructions for Major Repairs implementation / 实施重大维修的说明
 - ✓ Job Cards, Kits definition & Installation procedures / 工作卡，工具包定义和安装程序

- MOD / DE-MOD Engineering Support / MOD / DE-MOD 工程支持
 - ✓ Definition of System Access / 系统访问的定义
 - ✓ Close-up / 特写
 - ✓ Liaison Engineering (Support to Quality Issues) / 联络工程（支持质量问题）
 - ✓ Removed Equipment list & ICAs update / 去除设备清单和 ICA 更新

- Fleet Performance / 机队性能
 - ✓ Operational Performance optimization / 运营绩效优化
 - ✓ Technical analysis of operational interruptions / 操作中断的技术分析

- Record Inspection / 记录检查
 - ✓ Support to aircraft Transactions / 支持飞机交易



REFERENCES/参

Airbus A380 Cabin retrofit SIA/空客 A380 机舱改造
Airbus A330 Cabin Upgrade/空客 A330 机舱升级
Airbus A320 Cabin Retrofit/空客 A320 机舱改造

References / 参考文献

Our team has worked on the development of major aerostructure work packages and subassemblies. These mandates included the C-Series program (Passenger door, Service door, Cargo door (Overwing Emergency Exit door) and the Global 7000/8000 program (Cargo door, Passenger door) with Bombardier in Montreal, Canada as well as the engineering and certification support on the Falcon 6X Pax door and the Pressure Bulkhead door of the Airbus Beluga XL.

我们的团队致力于主要航空结构工作包和组件的开发。这些职责包括 C 系列（乘客门、安全门、货舱门（机翼上面的紧急出口门）和 Global 7000/8000 项目（货物门、乘客门）与庞巴迪在蒙特利尔，加拿大以及工程和认证支持的猎鹰 6X Pax 门和空客 Beluga XL 压力舱壁门。



In conjunction with Bombardier, our experts contributed to the successful redesign and optimization of the C-Series aircraft doors where a major weight saving was achieved, while meeting all technical requirements from integration and achieving a substantial reduction in the bill of material.

与庞巴迪公司合作，我们的专家成功地重新设计和优化 C 系列飞机舱门做出了贡献，实现了重大的重量节约，同时满足了集成的所有技术需求，并实现了材料成本的大幅降低。

In addition to this our experts have supported numerous work packages such as the C-series Cockpit, Aft Fuselage as well as the Global 7500 Center fuselage in helping Bombardier and Stelia in achieving their objectives of weight and Residual strength objectives. Our experts have more specifically contributed to the development and definition of applicability of the structural repair manual for the whole center fuselage.

除此之外，我们的专家还支持了许多工作包，如 C 系列驾驶舱，后机身以及 Global 7500 中机身，以帮助庞巴迪和斯特利亚实现其重量和剩余强度的目标。我们的专家对整个中机身结构维修手册的适用性的开发和定义做出了更具体的贡献。

Our expertise on Structures & Doors covers both new program developments and in-service programs:

我们在结构和门方面的专业知识涵盖了新项目开发和服役项目:

- **Product Development (New Programs) / 产品开发 (新项目):**
 - ✓ **Integrated Design & Stress Teams deployed [Structure/Mechanism/Systems]**
综合设计及应力小组 [结构/机制/系统]
 - ✓ **Leading Stress & Design engineering teams**
应力和设计工程团队
 - ✓ **Testing Support (CAST / DADTT / RIG Tests)**
测试支持 (CAST/DADTT/钻机测试)
 - ✓ **Support to Certification DADs (Stress / Hydromech /Occupant Safety)**
对认证 DADs 的支持 (应力/液压机械/乘员安全)

- **In-Service Programs (STCs/PDAs) / 服役项目 (STCs/PDAs) :**
 - ✓ **CRJ-200 Pax door Piano Hinge Improvement**
CRJ-200 Pax 门钢琴铰链改进
 - ✓ **CRJ-700 Pressure Bulkhead Reinforcement**
CRJ-700 压力舱壁加固
 - ✓ **CRJ-200/700 Pax door Seal striker and Protective Plate**
CRJ-200/700 Pax 门封和保护板
 - ✓ **Dash8 Q400 Pax/Service/Cargo Doors (Stop-Hinge fitting & CounterBalance System)**
Dash 8 Q500 Pax/服务/货舱门 (停止铰链安装和平衡系统)
 - ✓ **ATR 72 LCD Certification Support (CVE Hydromech & DTA)**
ATR 72 LCD 认证支持 (CVE Hydromech & DTA)

- **Supported Programs (New Programs) / 支持项目 (新项目):**
 - ✓ **C-series: Passenger & Service Door/Cargo Door/Oweed; Cockpit, Aft Fuselage**
C 系列: 客舱门/货舱门/舷窗; 驾驶舱, 后机身
 - ✓ **Global 7000: Passenger Door, Oweed, Cargo Door & Cockpit Escape Hatch; Center fuselage, Cockpit, Aft Fuselage, Wings**
Global 7000: 客舱门、舷窗、货舱门和驾驶舱逃生舱口; 中机身, 驾驶舱, 后机身, 机翼
 - ✓ **Learjet 85: Pax & Oweed**
Learjet 85: Pax & 舷窗

- ✓ Dassault Falcon 6X: Passenger door (Support to certification and modifications to fix mechanism Issues)

Dassault Falcon 6X: 乘客门（支持认证和修改以修复机制问题）

- ✓ Beluga XL: Pressure Bulkhead Door (Support to certification and modifications to fix Mechanism and structure Issues)

Beluga XL: 压力舱壁门（支持认证和修改以修复机制和结构问题）

– Other Programs/其他项目

- ✓ Bombardier / Viking Water Bomber – CL-215, CL-215T, CL-415
- ✓ 庞巴迪/Viking 水上轰炸机-CL-215, CL-215T,CL415
- ✓ Bombardier (de Havilland) DHC-8 (Dash 8)
- ✓ 庞巴迪 DHC-8（冲8）
- ✓ Bombardier Regional Jet (Various Models)
- ✓ 庞巴迪区域喷气机
- ✓ Bombardier Business Jets – Challenger, Global Express / 5000
- ✓ 庞巴迪商务喷气机- Challenger, Global Express / 5000
- ✓ Airbus A310, A319, A320, A321
- ✓ 空客 310,319,320,321
- ✓ ATR 42
- ✓ Boeing 727, 737, 747, 757, 767
- ✓ Boeing (McDonnell Douglas) (Douglas) DC-3, DC-10
- ✓ British Aerospace AVRO 146-RJ85 (-RJ85A) (Note: In an airtanker configuration.)
- ✓ Lockheed Electra (188A/C) (Note: In an airtanker configuration.)

