

型号认可证数据单

THE VALIDATION DATA SHEET

编号/No.: VTC157E

版次/Revision: 5

型号/Type:

RB211 Trent 768-60

RB211 Trent 772-60

RB211 Trent 772B-60

RB211 Trent 772C-60

批准人/Approved By:



职务/Title: Director General of CAAC-AAD

日期/Date: 2021 年 10 月 29 日

本数据单是型号认可证（编号：VTC157E）的组成部分，它规定了符合中国民用航空局的适航要求所颁发此型号认可证的产品状态和限制。

This data sheet, which is part of Validation of Type Certificate (No: VTC157E), prescribes condition and limitation under which the product for which the type certificate was issued meets the airworthiness requirements of the Chinese Civil Aviation Regulation.

型号认可证持有人/Validation of Type Certificate Holder:

Rolls-Royce Deutschland Ltd & Co KG
Eschenweg 11
Dahlewitz
15827 Blankenfelde-Mahlow
Germany

第1部分 概述

SECTION 1 GENERAL

1. CAAC认可数据单和型号合格证数据单/CAAC Validation Data Sheet and Type Certificate Data Sheet

	中国民用航空局认可数据单号、版次和颁发日期 CAAC Validation Data Sheet Number, Revision and issuance date	型号合格证数据单号、版次和颁发日期 Type Certificate Data Sheet Number, Revision and issuance date
当前 Current	VTC157E, 版次5, 2021年10月29日 No. VTC157E, Revision 5, 29 October 2021	EASA TCDS E.042, Issue: 06, 20 December 2019
历史 History	VTC157E, 版次4, 2019年10月25日 No. VTC157E, Revision 4, 25 October 2019	EASA TCDS E.042, Issue: 05, 21 February 2019
	VTC157E, 版次3, 2018年10月15日 No. VTC157E, Revision 3, 15 October 2018	EASA TCDS E.042, Issue: 04, 18 April 2018
	VTC157E, 版次2, 2016年12月9日 No. VTC157E, Revision 2, 09 December 2016	EASA TCDS E.042, Issue: 03, 14 October 2014
	VTC157E, 版次1, 2006年6月5日 No. VTC157E, Revision 1, 05 June 2006	EASA TCDS E.042, Issue: 01, 06 March 2006
	VTC157E, 版次0, 2005年2月3日 No. VTC157E, Revision 0, 03 February 2005	EASA TCDS E.042, Issue: 0, 11 September 1998

注：上表中出口国局方型号合格证数据单信息仅供参考/ Note: Above TCDS information of Certification Authority is only for reference.

CAAC认可数据单修订情况说明 / CAAC VTCDS Change Record

CAAC 认可数据单版次/ CAAC VTCDS Revision	相对上一版次的修订情况/ CAAC VTCDS Change Record	备注/Remark
版次 5/Revision 5	1. 记录CAEP/10排放要求的符合性/Record of compliance with CAEP/10 emissions requirements 2. 引入发动机润滑油手册/Introduction of Engine Oils Manual 3. 删除最大允许润滑油消耗量限制值/Removal of the maximum allowable oil consumption limit 4. 增加注释14/Addition of note 14 5. 记录3号喷气燃料国家标准（GB 6537）的符合性/ Record of compliance with National Standard of No.3 Jet Fuel (GB 6537)	

2. 类别/Category: 发动机/Engine

3. 认可当局/Validation Authority: 中国民用航空局/CAAC
 审定当局/Certifying Authority: 欧洲航空安全局/EASA

- 4. 型号合格证持有人/Type Certificate Holder:** Rolls-Royce Deutschland Ltd & Co KG
Eschenweg 11
Dahlewitz
15827 Blankenfelde-Mahlow
Germany
- 5. 双发延程飞行/ETOPS:** 适用/Applicable
- 6. CAAC专用要求/CAAC Special Requirements:** 满足中华人民共和国国家标准 “3 号喷气燃料”
(GB 6537) 的要求。
Compliance with requirement of National Standard of the
People's Republic of China “No.3 Jet Fuel” (GB 6537).

第2部分 数据单

SECTION 2 DATA SHEET

I. 概述/General

1. 型号/Type/ Model

RB211 Trent 768-60, 772-60, 772B-60, 772C-60

以上发动机在以下规定的使用限制内批准用于民用航空运输类飞机（客机），发动机应符合动力装置安装要求中规定的安装标准。

RB211 Trent 768-60, 772-60, 772B-60, 772C-60

These variants are approved for use on multi-engined civil aircraft classified in the Transport Category (Passenger) at the ratings and within the operating limitations specified below, subject to compliance with the powerplant installation requirements appropriate to approved installations.

2. 型号合格证持有人/Type Certificate Holder

Rolls-Royce Deutschland Ltd & Co KG

Eschenweg 11

Dahlewitz

15827 Blankenfelde-Mahlow

Germany

DOA Ref.: EASA.21J.065

3. 制造商/Manufacturer

Rolls-Royce plc

4. 申请日期/ Certification Application Date:

30 June 1991 1991年6月30日	30 June 1991 1991年6月30日	26 August 1997 1997年8月26日	06 May 2005 2005年5月6日
RB211 Trent 768-60	RB211 Trent 772-60	RB211 Trent 772B-60	RB211 Trent 772C-60

5. 审定基准日期/Certification Reference Date

1991 年 6 月 30 日/30 June 1991

6. EASA颁证日期/EASA Type Certification Date

RB211 Trent 768-60 1994 年 1 月 24 日（参见注 11）

24 January 1994 for RB211 Trent 768-60 (refer to note 11)

RB211 Trent 772-60 1994 年 3 月 18 日 (参见注 11)
18 March 1994 for RB211 Trent 772-60 (refer to note 11)

RB211 Trent 772B-60 1997 年 9 月 11 日 (参见注 11)
11 September 1997 for RB211 Trent 772B-60 (refer to note 11)

RB211 Trent 772C-60 2006 年 3 月 06 日
06 March 2006 2006 for RB211 Trent 772C-60

II. 审定基础/Certification Basis

1. EASA 审定基础/EASA Certification Basis

1.1. 适航标准/Airworthiness Standards:

- 1990年5月4日发布的JAR-E/JAR-E, change 8, dated 4 May 1990
- 加黄页 E/91/1, 1991年5月27日生效/Orange Paper E/91/1, effective 27 May 1991

1.2. 专用条件/Special Conditions (SC)

- JAR-E 790 吸雨/Ingestion of Rain
- JAR-E 790 吸雹/Ingestion of Hail

1.3. 等效安全/Equivalent Safety Findings

- JAR-E740(f) 没有声明或指示最大连续速度限制/Non-Declaration or Display of Maximum Continuous Speed Limitations
- JAR-E800(c) 中鸟数量/Number of medium birds (NPA-E-12 ref Orange Paper E/93/1)

1.4. 偏离/Deviations

- JAR-E890(a) 发动机带反推校准/Engine Calibration in Reverse Thrust – 豁免/Exemption
- JAR-E 570(a)(3) 回油泵进口滤网/Scavenge pump inlet strainers -豁免/Exemption

1.5. 环境保护/Environmental Protection

CS-34 第 3 修正案

CS-34 amendment 3

发动机排放: 国际民航组织附件16第二卷 (2017年7月第四版, 包括2018年1月1日生效的第9修正案, 于2018年9月11日实施于欧盟法规)。

Engine emissions: ICAO Annex 16 Volume II, fourth edition, July 2017, including Amendment 9, applicable 01/01/2018, as implemented into EU legislation 11/09/2018.

NO_x满足第III部分中第二章§ 2.3.2 e)节要求 (CAEP/8)。

For NO_x: the standards in accordance with Part III, Chapter 2, § 2.3.2 e) (CAEP/8) apply.

非挥发性颗粒物最大质量浓度满足第III部分中第四章§ 4.2.2节要求 (CAEP/10)。

For maximum nvPM mass concentration, the standards of Part III, Chapter 4, § 4.2.2 (CAEP/10) apply.

2. CAAC认可审定基础/CAAC Validation Certification Basis

CAAC接受 EASA 的审定基础为认可审定基础。

CAAC accepts EASA certification basis as validation basis.

III. 技术特性/Technical Characteristics

1. 型别设计定义/Type Design Definition

建造标准在以下图纸索引单或之后批准的版本中规定：

The build standards are defined in the following Drawing Introduction Sheet (DIS) or later approved issues:

DIS 2150 Issue 3 for Trent 768-60

DIS 2141 Issue 2 for Trent 772-60

DIS 2179 Issue 1 for Trent 772B-60

DIS 2276 Issue 2 for Trent 772C-60

2. 描述/Description

Trent 700为三轴、高涵道比、轴流涡扇发动机。其低压、中压以及高压压气机分别通过同心轴由涡轮驱动。低压压气机包括26片宽弦风扇叶片。燃烧系统包括单级环形燃烧室、24个燃油喷嘴。低压、中压、高压组件的转动互相独立，且当从发动机后向前看时转动方向为逆时针。压气机和涡轮有如下特征：

Description: The Trent 700 engine is a three-shaft high bypass ratio, axial flow, turbofan with Low Pressure, Intermediate Pressure and High Pressure Compressors driven by separate turbines through coaxial shafts. The LP Compressor consists of 26-off Wide Chord Fan Blades. The combustion system consists of a single annular combustor, with 24-off Fuel Spray Nozzles. The LP, IP and HP assemblies rotate independently, and in an anti-clockwise direction when viewed from the rear of the engine. The Compressor and Turbine have the following features:

压气机/Compressor	涡轮/Turbine
压气机 单级低压风扇/Compressor LP Single Stage Fan	涡轮 4 级低压轴流/Turbine: LP 4 stage, axial flow
8 级中压轴流压气机/IP 8 stage , axial flow	1 级中压轴流/IP 1 stage, axial flow
6 级高压轴流压气机/HP 6stage, axial flow	1 级高压轴流/HP 1 stage, axial flow

使用EEC（发动机电子控制器）进行发动机控制，EEC与飞机之间有数字通信接口（ARINC）。

The engine control system utilises an EEC (Electronic Engine Controller) which has an airframe interface for digital communications (ARINC).

3. 设备/Equipment

设备的细节见型号设计定义：参见相应的发动机DIS

For details of equipment included in the type design definition: refer to the appropriate engine DIS.

对于飞机型号合格证持有人提供的设备细节：参见相应发动机DIS

For details of equipment supplied by the Airframe TC holder: refer to the appropriate engine DIS.

发动机DIS包括起动机马达和反推装置且所有发动机批准使用反推。

The engine DIS includes the starter motor and Thrust Reverser Unit, and all engines are approved for reverse thrust

operation.

4. 尺寸/Dimensions

总长度/Overall mm	5639
最大半径/maximum Radius mm	1372

长度-从进气整流锥尖部（不包括橡胶头部）开始，到CNA后部。

Length- tip of spinner minus rubber tip to rear of CNA.

半径-从中线开始，不包括余油放泄管。

Radius - from centre line, not including drains mast.

5. 净重/Dry Weight

最大发动机净重/Maximum dry engine weight (kg)	6160
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（不包括液体和短舱EBU）

(Not including fluids and Nacelle EBU)

6. 额定值/Ratings

ISA海平面静止条件推力额定值如下/The ISA sea-level static thrust ratings are:

额定值/Rating		Trent 768-20	Trent 772-60	Trent 772B-60	Trent 772C-60
推力 kN (lbf)	降落（净） （5分钟）	300.3 (67,500)	316.3 (71,100)	316.3 (71,100)	316.3 (71,100)
	等效无辅助设备发动机起飞值 Equivalent Bare Engine Take-Off	304.3 (68400)	320.3 (72,000)	320.3 (72,000)	320.3 (72,000)
	最大连续值（净） Maximum Continuous (net)	268.7 (60,410)	282.7 (63,560)	282.7 (63,560)	282.7 (63,560)

参考注释1, 2, 12和13

Refer to Note 1, 2, 12 & 13.

7. 控制系统/Control System

发动机采用全权限数字发动机控制系统（FADEC）。

The engine is equipped with a Full Authority Digital Engine Control (FADEC) system.

发动机电子控制器件号EEC2000-04AS1或之后批准的标准。

Electronic Engine Control System, part number- EEC2000-04AS1 or later approved standard.

软件标准，对于RB211 Trent 768-60 and 772-60版本为EEC A6.2或之后批准的标准。

Software Standard – EEC A6.2 or later approved standard for RB211 Trent 768-60 and 772-60.

对于RB211 Trent 772B-60为EEC A9.0或之后批准的标准。

EEC A9.0 or later approved standard for RB211 Trent 772B-60.

对于RB211 Trent 772C-60为EEC A12.5或之后批准的标准。

EEC A12.5 or later approved standard for RB211 Trent 772C-60.

更多的信息参见安装手册和操作指南。

Refer to the Installation Manual and Operating Instructions for further information.

参见注3和4

Refer to notes 3 & 4.

8. 流体/Fluids (燃油, 滑油, 冷却剂, 添加剂)

8.1. 燃油和添加剂/Fuel and Additives:

参考适用的发动机操作手册文件 F-Trent-A330 附录。

Fuel and Additives: Refer to the applicable engine “Operating Instructions” document F-Trent-A330, APPENDIX.

8.2. 滑油/Oil

参考“民用大发动机-发动机滑油手册”文件 EOM-CIVIL-1RR。

Refer to the “Civil Large Engines – Engine Oils Manual” document EOM-CIVIL-1RR.

9. 航空器附件传动装置/Aircraft Accessory Drives

发动机附件齿轮箱可以最多装有两个液压泵和一个整体传动发电机以向飞机提供电能和液压能。此组件形式上是飞机的一部分, 且应经过JAR2-5的审定。

The engine’s accessory gearbox may be fitted with up to two hydraulic pumps and one Integrated Drive Generator to provide electrical and hydraulic power to the aircraft. These units are formally part of the airframe, and certified under JAR-25 regulations.

10. 最大允许引气/Maximum Permissible Air Bleed Extraction

环境控制系统引气(客户引气)在起飞、巡航和爬升阶段从中压8级引气, 在下降和地面慢车阶段从高压6级引气。根据发动机工况和大气条件, 从中压8级和高压6级引气自动切换。在所有情况下, 动力装置防冰引气从高压3级引气。

Environmental Control System Bleed (‘Customer Bleed’) is bled from IP8 off take at take-off, cruise and climb, and from HP6 at descent and idle ground conditions. Switch-over from IP8 to HP6 off take takes place automatically, dependant upon engine and atmospheric conditions. Powerplant Anti-Icing Flow is bled from HP3 offtake at all conditions.

下表给出了最大允许客户引气和短舱防冰引气量。引气流量在各点间线性变化。

The maximum allowable Customer Bleed and nacelle thermal anti-icing flow is given in the tables below. Bleed flows vary linearly between the points listed.

正常工况下客户引气:

Customer Bleed Off takes for normal operation:

Condition	CUSTOMER BLEED (HP6) %W26	CUSTOMER BLEED (IP8) %W24
Low Idle	11.6%	n/a
Switchover point (nominal 1.26 EPR)	5.2%	4.5%
Maximum Continuous	n/a	3.1%
Above Max Continuous	n/a	2.4%

非正常工况下客户引气:

Customer Bleed Off takes for abnormal operation:

Condition	CUSTOMER BLEED (HP6) %W26	CUSTOMER BLEED (IP8) %W24
Low Idle	12.7%	n/a
Switchover point (nominal 1.26 EPR)	5.8%	5.3%
Maximum Continuous	n/a	4.0%
Above Max Continuous	n/a	2.9%

注：W24为中压压气机进口流量，W26为高压压气机进口流量。

Note: W24 is IP compressor inlet flow and W26 is HP compressor inlet flow.

短舱热防冰气流（HP3）通过调节活门进行调节从而向发动机/短舱提供流量。

The nacelle thermal anti-icing flow demand (HP3) is modulated via a regulating valve to provide a flow function to the engine / nacelle.

正常和非正常情况下短舱热防冰引气提取：

Nacelle Thermal Anti-Icing Bleed Off takes for normal and abnormal operation:

TET (T41) K	NACELLE THERMAL ANTI-ICE BLEED (HP3) %W26
Low Idle to 1450	0.75%
Maximum Continuous	0.69%
Above Maximum Continuous	0.44%

从风扇出口提取气流冷却预冷器中的客舱引气。

Bleed is taken off the fan outlet to cool the air in the cabin bleed system pre-cooler.

最大允许预冷器气流见下表。引气流量在各点间线性变化。

The maximum allowable pre-cooler flows are given in the table below. Bleed flows vary linearly between the points listed.

正常和非正常情况下预冷器气流：

Pre-cooler flow for normal and abnormal operation:

Condition	PRE-COOLER BLEED (LPC) %W120
Low Idle	1.23%
Maximum Continuous	1.23%
Above Maximum Continuous	0.96%

注：W120为风扇出口流量

Note: W120 is fan inlet flow

IV. 使用限制/Operating Limitations

1. 温度限制/Temperature Limits

1.1 气候工作包线 / Climatic Operating Envelope

发动机可以在环境温度高达ISA+40°C时使用。工作包线的细节和发动机进口畸变参见安装手册。

The engine may be used in ambient temperatures up to ISA + 40 °C. Refer to the Installation Manual for details of the Operating Envelope, including the air inlet distortion at the engine inlet.

1.2 涡轮燃气温度-修正值/Turbine Gas Temperature - Trimmed (°C)

高压压气机转速低于50%，地面起动最大限制：700

空中重新点火最大限制：850

起飞最大限制（5分钟，限制）：900

最大连续（不限时间）：850

最大超温（参见注5）：920

参见注6

Below 50% HP speed, maximum during starts on the ground: 700

Maximum during relights in flight: 850

Maximum for take-off (5 min. limit): 900

Maximum Continuous (unrestricted duration): 850

Maximum over-temperature (refer to note 5): 920

Refer to note 6.

1.3 燃油温度/Fuel temperature (°C)

飞行中最低燃油温度：-54（或燃油冰点，两者取大值）

地面起动最低燃油温度：-54

最大燃油温度：55

参见注7

更多信息参见安装手册

Minimum fuel temperature in flight: - 54 (or the fuel freeze point, whichever is higher)

Minimum fuel temperature for ground starting: - 54

Maximum fuel temperature: 55

Refer to note 7.

Refer to the Installation Manual for additional information.

1.4 滑油温度/Oil temperature (°C)

滑油回油温度/Combined oil scavenge temperature:

最小发动机起动温度/Minimum for engine starting: -40

最小发动机加速温度/Minimum for acceleration to power: 50

最低无限制使用温度/Maximum for unrestricted use: 190

2. 转速限制/ Rotational Speed Limits (rpm) :

转子/Rotor	高压/HP	中压/ IP	低压/LP
参考速度/Reference speeds, 100% rpm	10611	7000	3900
最大起飞（5分钟限制，参见注2、8和9） Maximum for Take-off (5 minute limit, refer note 2, 8,9)	100.0%	103.3%	99.0%
最大超转转速/Maximum Overspeed (20秒限制/20-second limit, refer note 8, 9)	100.0%	103.3%	99.0%
最大连续（见注9和10） Maximum Continuous (See note 10, 9)	99.1%	100.8%	98.2%

在静止工作情况下，不允许在51%-74%低压转速范围内稳定工作。

Stabilised operation in the speed range 51% to 74% NL is not permitted during static operations. Passing through this speed range while increasing or decreasing thrust is permitted.

3. 压力限制/Pressure Limits

3.1 燃油压力/Fuel pressure kPa

最小绝对进口压力（发动机进口测量）Minimum absolute inlet pressure (measured at engine inlet): 34.5 + Fuel Vapour Pressure

最大进口压力（吊架接口测量）/Maximum pressure at inlet (measured at the pylon interface):

(i) 连续/Continuous: 414

(ii) 瞬态/Transiently: 483

(iii) 静态/Static: 1276

3.2 滑油压力/ Oil pressure (kPa)

最低滑油压力/Minimum oil pressure:

(i) 地面慢车到70%高压转速/Ground idle to 70% HP rpm: 165

(ii) 高于高压转速95%/Above 95% HP rpm: 345

4. 限时派遣/Time Limited Dispatch:

发动机批准可以进行限时放行。每种可放行状态最大允许的纠正时间详见安装手册，不允许超过相关的最大允许纠正时间。

The engine has been approved for Time Limited Dispatch. The maximum justifiable rectification period for each dispatchable state is specified in the Installation Manual; no extension to such rectification period is allowed.

V. 操作及勤务指导/Operating and Service Instructions

手册/Manual	TRENT700所有型号/ Trent 700 all variants
安装手册/Installation Manual EL2837	EL2837
操作指南/Operating Instructions	F-Trent-A330

持续适航文件(ICA)/Instructions for Continued Airworthiness (ICA)	TRENT700 所有型号/All Trent 700 engine models
发动机手册/Engine Manual	E-Trent-A330
维护手册/Maintenance Manual	M-Trent-A330
时间限制手册/Time Limits Manual	T-Trent-1RR
民用大型发动机-发动机滑油手册/Civil Large Engines – Engine Oils Manual	EOM-CIVIL-1RR
服务通告/Service Bulletins	RB211—as published by TC holder

VI. 注释/Notes

1. 以上的引用的光身发动机的起飞和最大连续推力是通过已排除会引起推力损失的进口、冷喷嘴、热喷嘴、外涵气体泄漏以及发动机后部等因素的净起飞推力和净最大连续推力而得出。
The Equivalent Bare Engine Take-off and Maximum Continuous thrusts quoted above are derived from the approved Net Take-off and Net Maximum Continuous thrust by excluding the losses attributable to the inlet, cold nozzle, hot nozzle, by-pass duct flow leakage and the after body. No bleed or power off takes are assumed.
2. 起飞推力以及相关的使用限制在一台发动机失效后可以使用到10分钟，但除此之外应被限制在5分钟内。
The take-off rating and the associated operating limitations may be used for up to 10 minutes in the event of an engine failure, but their use is otherwise limited to no more than 5 minutes.
3. 根据DO-178A/ED-12A，发动机电子控制的软件为“1”级。
The software of the Engine Electronic Control is designated Level “1” according to DO-178A/ED-12A.
4. 电磁兼容 / 闪电防护（细节参见安装手册）
EMI / Lightning (Refer to Installation Manual for details.)
5. Trent 700系列发动机的最大排气超温温度为920摄氏度。如果无意中达到此限制不超过20秒钟，不需要进行维修。产生超温的原因必须进行调查并纠正。
The Trent 700 is approved for a maximum exhaust gas over-temperature of 920 degrees C for inadvertent use for periods of up to 20 seconds without requiring maintenance action. The cause of the over-temperature must be investigated and corrected.
6. 涡轮排气温度是利用热电偶在第一级低压涡轮喷嘴导向叶片处测得。
Turbine Gas Temperature is measured by thermocouples positioned at the 1st stage Nozzle Guide Vane of the LP Turbine.
7. 燃油温度限制是根据发动机进口的状态提出。
The fuel temperature limits are quoted for conditions at the engine inlet.
8. 在经过改装73-C780后，LP和HP最大起飞转速增加到99.5%和100.7%。该速度信号传输到飞机，并调节以维持相同的驾驶舱指示最大起飞转速（例如99.0%和100.0%）。
Post Modification 73-C780, the Maximum Take-Off speeds for LP and HP shafts are increased to 99.5% and 100.7%. The speed signals transmitted to the aircraft, however, are trimmed in order to maintain the same cockpit indicated Maximum Take-Off speeds as the pre-modification standard (i.e. 99.0% and 100.0% respectively).
9. 在经过改装73-E502后，HP的最大起飞转速增加到101.7%。该速度信号传输到飞机，并调节以维持与改装之前相同的驾驶舱指示最大起飞转速（例如100.0%）。最大连续HP转速也从99.1% 提高到100.1%。
Post Modification 73-E502, the Maximum Take-Off speeds for the HP shaft is increased to 101.7%. The speed signals transmitted to the aircraft, however, are trimmed in order to maintain the same cockpit indicated

Maximum Take-Off speeds as the pre-modification standard (i.e 100.0%.) The Maximum Continuous HP Shaft speed is also raised from 99.1% to 100.1%.

10. 数据单中定义的最大连续速度限制在A330飞机上并不以限制的形式在驾驶舱中指示。在审定项目中同意不指示这些限制。

The Maximum Continuous Speed limitations defined in this Data Sheet are not displayed as limitations on the A330 flight deck. Non display of these limitations was agreed during the Certification programme.

11. 在被EASA数据单替代之前, RB211 Trent 768-60, 772-60和772B-60型发动机最早列于CAA-UK的发动机型号合格证092/2、数据单1050。

Variants RB211 Trent 768-60, 772-60 and 772B-60 were previously covered under CAA-UK Engine Type Certificate 092/2 and Type Certificate Data Sheet 1050 prior to being superseded by the EASA Type Certificate and Type Certificate Data Sheet.

12. 772B-60与772-60具有相同的额定功率, 除了海拔610米(2,000英尺)到2440米(8,000英尺)之间或当环境温度大于ISA+15°C。在以上的情况下, 772B-60型发动机增加起飞推力。推力的增加随高度和环境温度而变化, 但最大值为5.4%。

The Trent 772B-60 has the same ratings as the 772-60 except between 610 m (2,000 ft) and 2440 m (8,000 ft) altitude or when the ambient temperature is greater than ISA + 15 °C, where the 772B-60 produces increased thrust at take-off rating. The magnitude of this increase varies with altitude and ambient temperature and is limited to a maximum of 5.4%.

13. Trent 772C-60与772B-60有相同的额定功率, 除了海拔高于2440米(8,000英尺), 在此高度之上772C会提供更高的起飞和连续推力。推力的增加随高度、环境温度以及马赫数而变化, 但最大值为8.5%。从3048米(10,000英尺)到4877米(16,000英尺), 当环境温度为ISA+28°C 或更高时, 起飞推力增加3%, 且在ISA+18°C时, 速度增加为0%。在高度大于3962米(13,000英尺)且马赫数大于0.4时, 推力会进一步增加, 使最大连续推力超过最大起飞推力, 该增加使得最大起飞推力在ISA +15°C之下时相对Trent 772B-60在487米(16,000英尺) 0.5 Mn, 增加5.0%。相对于Trent 772B-60在4572米(15,000英尺)到7620米(25,000英尺)且马赫数为0.3到0.6之间, 环境温度为ISA到ISA+30°C, 最大连续推力最多增加8.5%。

The Trent 772C-60 has the same ratings as the 772B-60 except at altitudes above 2440 m (8,000 ft) where the 772C can provide more thrust in both Take-Off and Continuous conditions. The extent of this thrust increase is dependent upon altitude, temperature and Mach number, but is limited to a maximum of 8.5%. From 3048 m (10,000 ft) to 4877 m (16,000 ft) there is a Take-Off thrust increase of 3% for day temperatures of ISA + 28 °C and above, this reduces to 0% at ISA + 18 °C and below. At altitudes greater than 3962 m (13,000 ft) and Mach numbers greater than 0.4 a further thrust increase results from maximum continuous thrust exceeding maximum Take-Off thrust, this increases the maximum Take-Off thrust below ISA +15°C by a maximum of 5.0% relative to the Trent 772B-60 at 4877 m (16,000 ft), 0.5 Mn. Max Continuous thrust is increased by up to 8.5% relative to the Trent 772B-60 rating for altitudes between 4572 m (15,000 ft) and 7620 m (25,000 ft) for Mach numbers between 0.3 and 0.6 and day temperatures from ISA to ISA + 30 °C.

14. EASA 批准的持续适航文件中的适航限制章节, 发布在相应的《时间限制手册》中。

The EASA approved Airworthiness Limitations Section of the Instructions for Continued Airworthiness is published in the applicable “Time Limits Manual”.

--结束--

-- END--