

型号认可证数据单

TYPE VALIDATION CERTIFICATE DATA SHEET

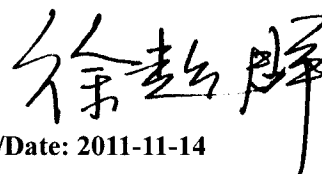
编号/No.: VTC0210E

版次/Revision: 2

型号/Type:

CF34-10E2A1, CF34-10E5, CF34-10E5A1,
CF34-10E6, CF34-10E6A1, CF34-10E7,
CF34-10E7-B, CF34-10A16, CF34-10A18

批准人/Approved by:



日期/Date: 2011-11-14

本数据单是型号认可证（编号：VTC0210E）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: VTC0210E), 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:

General Electric Company,

1 Neumann Way

Cincinnati, Ohio

45215-6310 USA

有效页清单/ List of Effective Page:

页数/ Pages	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
版次/Revision	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
页数/ Pages	16	17													
版次/Revision	2	2													

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	VTC0210E; 版次: 2; 颁发日期: 2011年11月14日; No.VTC0210E; Revision 2; Date of Issue : 2011-11-14	FAA TCDS E00070EN; 第6版; 2010年7月22日颁发 No. E00070EN; Issue No.6; Issue Date: July.22,2010
历史 History	VTC0210E; 版次: 1; 颁发日期: 2011年7月18日; No.VTC0210E; Revision 1; Date of Issue : 2011-7-18	FAA TCDS E00070EN; 第5版; 2008年6月16日颁发 No. E00070EN; Issue No.5; Issue Date: June. 16, 2008
	VTC0210E; 版次: 0; 颁发日期: 2008年4月24日; No.VTC0210E; Revision 0; Date of Issue : 2008-4-24	FAA TCDS E00070EN; 第4版; 2006年7月20日颁发 No. E00070EN; Issue No.4; Issue Date: July. 20, 2006

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: 美国联邦航空局/FAA
4. 型号合格证持有人/Type Certificate Holder: General Electric Company,
1 Neumann Way, Cincinnati, Ohio, 45215-6310 USA
5. 制造商/Manufacturer: General Electric Company
6. ETOPS: 不适用/NA
7. CAAC专用要求/CAAC Special Requirements: 满足中国3号燃油 (GB6537-2006) 的要求。
/Compliance with requirement of P.R.China JET Fuel No.3 (GB6537-2006).

第2部分 数据单

SECTION 2 DATA SHEET

1. 审定基础/Certification Basis

(1) CF34-10E (所有型别/All Models) –

- 联邦条例14章33部, 生效日期1965年2月1日, 修订案33-1至33-20 (2000年12月13日)。/
14 CFR, Part 33, effective February 1, 1965, as amended by amendments 33-1 through 33-20 (December 13, 2000).
- 联邦条例14章34部, 生效日期1990年9月10日, 修订案34-1至34-3 (1999年2月3日)。此外, 联邦条例40章87部, 生效日期2005年12月19日。/
14 CFR Part 34, effective September 10, 1990, as amended by amendments 34-1 through 34-3 (February 3, 1999). In addition, 40 CFR Part 87, effective December 19, 2005.
- 等效安全 8040-ELOS-04-NE-01, §33.83(c)(1) 振动测试。/
Equivalent level of safety 8040-ELOS-04-NE-01 §33.83(c)(1) Vibration Test

(2) CF34-10A (所有型别/All Models) –

- 联邦条例14章33部, 生效日期1965年2月1日, 修订案33-1至33-20 (2004年1月1日)。/
14 CFR, Part 33, effective February 1, 1965, as amended by amendments 33-1 through 33-20 (January 1, 2004).
- 联邦条例14章34部, 生效日期1990年9月10日, 修订案34-1至34-4 (2009年6月29日)。/
14 CFR Part 34, effective September 10, 1990, as amended by amendments 34-1 through 34-4 (June 29, 2009).
- 等效安全 8040-ELOS-10-NE-01, §33.83(c)(1) 振动测试。/
Equivalent level of safety 8040-ELOS-10-NE-01 §33.83(c)(1) Vibration Test

A. 型号合格证/ Type Certificate

型别/Model	申请日期/ Date of Application	证号 No. E00070EN 颁发日期 Issued/Amended
CF34-10E5	2001 年 2 月 9 日 February 9, 2001	2004 年 12 月 22 日 December 22, 2004
CF34-10E5A1	2001 年 2 月 9 日 February 9, 2001	2004 年 12 月 22 日 December 22, 2004
CF34-10E6	2001 年 2 月 9 日 February 9, 2001	2004 年 12 月 22 日 December 22, 2004
CF34-10E6A1	2001 年 2 月 9 日 February 9, 2001	2004 年 12 月 22 日 December 22, 2004
CF34-10E2A1	2006 年 1 月 2 日 January 2, 2006	2006 年 7 月 20 日 July 20, 2006
CF34-10E7	2006 年 1 月 2 日 January 2, 2006	2006 年 7 月 20 日 July 20, 2006
CF34-10E7-B	2007 年 6 月 4 日 June 4, 2007	2008 年 6 月 16 日 June 16, 2008

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CF34-10A16	2006年1月25日/ January 25, 2006	2010年7月22日/ July 22, 2010
CF34-10A18	2006年1月25日/ January 25, 2006	2010年7月22日/ July 22, 2010

B. 生产许可证/ PRODUCTION CERTIFICATE

CF34-10E /10A 生产许可证号/Production Certificate: No. PC108

CAAC 认可审定基础/ CAAC VALIDATION BASIS

接受 FAA 的审定基础作为认可审定基础。/Accept FAA certification basis as validation basis.

2. 技术特征/Technical Characteristics

I. 型别/Models	CF34-10E2A1	CF34-10E5	CF34-10E5A1	CF34-10E6	CF34-10E6A1	CF34-10E7	CF34-10E7-B
类型/Type	CF34-10E 发动机是具有双转子、轴流式、高涵道比、单级风扇、3 级低压压气机 9 级高压压气机，环形燃烧室，单级高压涡轮，4 级低压涡轮，有反推，后部中心整流罩、尾喷口、起动机及全权数字式发动机控制（FADEC）。 Dual rotor, axial flow, high bypass ratio turbofan with single stage fan, 3-stage low pressure compressor, 9-stage high pressure compressor, annular combustion chamber, single stage high pressure turbine, 4-stage low pressure turbine, a thrust reverser, aft core cowl, exhaust nozzle, starter, and a full authority digital engine control (FADEC).						
额定值（见注 5）海平面静推力，磅/ Ratings (see NOTE 5) Sea level static thrust, lb							
最大起飞（5 分钟） （见注 15、16）/ Maximum takeoff (5min.) （See note 15,16）	16960	18820	18820	18820	18820	20360	20360
正常起飞（5 分钟） （见注 15、16）/ Normal takeoff (5min.) See note 15,16	16960	17390	18820	17390	18820	18820	18820
最大持续/ Maximum continuous	15110	17040	17040	17040	17040	17040	17040
平速额定环境温度/ Flat rate ambient temperature							
起飞/Takeoff	86°F/30C	86°F/30C	86°F/30C	95°F/35C	95°F/35C	86°F/30C	86°F/30C
最大持续/max continues	77°F/25C	77°F/25C	77°F/25C	77°F/25C	77°F/25C	77°F/25C	77°F/25C
控制系统部件 /Control system Components							
燃油计量组件/ Fuel Metering Unit	2043M10	2043M10	2043M10	2043M10	2043M10	2043M10	2043M10

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全权数字发动机控制单元 (FADEC)							
硬件/Hardware	2043M11	2043M11	2043M11	2043M11	2043M11	2043M11	2043M11
软件/Software	2043M65	2043M65	2043M65	2043M65	2043M65	2043M65	2043M65
配置插头/ Configuration Plug							
硬件/Hardware	2162M48	2162M48	2162M48	2162M48	2162M48	2162M48	2162M48
发动机推力/ Engine Rating	2041M41	2041M41	2041M41	2041M41	2041M41	2041M41	2041M41
发动机构型/ Engine Configuration	2041M42	2041M42	2041M42	2041M42	2041M42	2041M42	2041M42
N1 配平设定/ Trim Setting	2041M43	2041M43	2041M43	2041M43	2041M43	2041M43	2041M43
点火系统/ Ignition System							
2 点火激励器/ 2 Ignition Exciters	9238M66	9238M66	9238M66	9238M66	9238M66	9238M66	9238M66
2 点火插头/ 2 Ignition Plugs	1374M12	1374M12	1374M12	1374M12	1374M12	1374M12	1374M12
燃油泵 Fuel Pump	2043M12	2043M12	2043M12	2043M12	2043M12	2043M12	2043M12
燃油/FUEL	-满足国标GB6537-2006要求的燃油。/The fuel compliance with requirement of GB6537-2006. -其余符合GE喷气燃油规范NO.D50TF2的燃油适用于所有型号。对每一批准的特殊燃油按照操作指南GEK112084执行。/The remaining fuel conforming to GE Jet Fuel Specification NO.D50TF2 is applicable for all models. See GEK 112084, Operating Instructions, for specific fuels approved per the subject specifications.						
滑油/OIL	符合 GE 规范 NO.D50TF1 的滑油适用于所有型号。对每一批准的特殊滑油按照操作指南 GEK 112084 执行。 Oil confirming to GE Specification NO.D50TF1is applicable for all models. See GEK 112084, Operating Instructions, for specific oils approved per the subject specifications.						
主要尺寸（FAR33 推力系统见安装手册 GEK112083） Principal Dimensions and Measurements (FAR 33Propulsion System see installation Manual GEK 112083							
长度，英寸/ Length, inches	177.93	177.93	177.93	177.93	177.93	177.93	177.93
最大直径，英寸/ Maximum diameter, inches	73.38x86.59	73.38x 6.59	73.38x86.59	73.38x86.59	73.38x 6.59	73.38x 6.59	73.38x86.59
重量，磅（包括剩余燃油和滑油）/ Weight, pounds (includes residual fuel and oil)	5100	5100	5100	5100	5100	5100	5100
重心位置，英寸 Center of Gravity Location, inches							
发动机站位 Engine Station	204.2	204.2	204.2	204.2	204.2	204.2	204.2
纵剖线 Butt Line	98.6	98.6	98.6	98.6	98.6	98.6	98.6
水平线 Water Line	104.4	104.4	104.4	104.4	104.4	104.4	104.4

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II. 型别/Models	-10A16	-10A18
	双转子、轴流式、高涵道比涡扇发动机，为单级风扇、3 级低压压气机、9 级高压压气机、环形燃烧室、单级高压涡轮、4 级低压涡轮，有反推，后部中心整流罩、尾喷口、起动机以及全权数字式发动机控制。 / Dual rotor, axial flow, high bypass ratio turbofan with single stage fan, 3-stage low pressure compressor, 9-stage high pressure compressor, annular combustion chamber, single stage high pressure turbine, 4-stage low pressure turbine, a thrust reverser, aft core cowl, exhaust nozzle, starter, and a full authority digital engine control (FADEC).	
额定推力 (磅)，海平面静态 (见注 5) Ratings (lb), Sea level static thrust (see NOTE 5)		
最大起飞 (5 分钟) (见注 15、16) Maximum takeoff (5min.) (See NOTE 15,16)	17640	19705
正常起飞 (5 分钟) (见注 15、16) Normal takeoff (5min.) (See NOTE 15,16)	17300	18460
最大持续 Maximum continuous	16110	17660
平台额定环境温度/Flat rate ambient Temperature		
起飞/Takeoff	86°F/30C	86°F/30C
最大持续/Max Continuous	77°F/25C	77°F/25C
控制系统部件 / Control System Components		
燃油计量组件 Fuel Metering Unit	2044M33	2044M33
全权数字式发动机控制/ Full Authority Digital Engine Control (FADEC)		
硬件 / Hardware	2043M11	2043M11
软件 / Software	2413M46	2413M46
构型插头/Configuration Plug		
硬件 /Hardware	2162M48	2162M48
发动机额定推力 /Engine Rating	2041M41	2041M41

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发动机构型 /Engine Configuration	2041M42	2041M42
N1 配平设定/trim Setting	2041M43	2041M43
点火系统 Ignition System		
2 点火激励器 /Ignition Exciters	9238M66	9238M66
2 点火插头 /Ignition Plugs	1374M12	1374M12
燃油泵/Fuel Pump	2044M34	2044M34
燃油/FUEL	-满足国标 GB6537-2006 要求的燃油。/The fuel compliance with requirement of GB6537-2006. -其余符合 GE 喷气燃油规范 NO.D50TF2 的燃油适用于所有型号。对每一批准的特殊燃油按照操作指南 GEK 112084 执行。/ Fuel conforming to GE Jet Fuel Specification NO.D50TF2 is applicable for all models. See GEK 112084, Operating Instructions, for specific fuels approved per the subject specifications.	
滑油/OIL	符合 GE 规范 NO.D50TF1 的滑油适用于所有型号。对每一批准的特殊滑油按照操作指南 GEK112084 执行。/ Oil conforming to GE Specification NO.D50TF1 is applicable for all models. See GEK 112084, Operating Instructions, for specific oils approved per the subject specifications.	
主要尺寸/ Principal Dimensions and Measurements	(FAR33 推进系统见安装手册 GEK112093/FAR 33 Propulsion System see installation Manual GEK 112093)	
长度(英寸)/Length, inches	158.6	158.6
最大直径(英寸)/Maximum diameter, inches	79.313 x 71.534	79.313 x 71.534
重量, 磅 (包括剩余燃油和滑油) /Weight, pounds (includes residual fuel and oil)	4925	4925
重心位置(英寸,Center of Gravity Location, inches)		
发动机站位/Engine Station	201.03	201.03
纵剖线/Butt Line	102.43	102.43
水平线/Water Line	97.84	97.84

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3、注释/NOTE

注 1 至 22 适用于说明的型号/Notes 1 through 22 applicable to models as specified

注 1/NOTE 1、

发动机转子最大允许运转速度如下：/Maximum permissible engine operating speeds for the engine rotors are as follows:

	CF34-10E (所有型别) CF34-10E(all models)	CF34-10A(所有型别) CF34-10A(all models)
低压转子 (N1) RPM/ Low pressure rotor (N1), rpm		
最大起飞/Maximum takeoff	6325	6325
正常起飞/Normal takeoff	6325	6325
最大持续/Maximum continuous	6325	6325
高压转子 (N2) RPM/ High pressure rotor (N2), rpm		
最大起飞/Maximum takeoff	18018	18018
正常起飞/Normal takeoff	18018	18018
最大持续/Maximum continuous	18018	18018
当发生超限时，参考 GE 发动机手册 GEK 112081 (所有 10E 型别)，GEK 112091 (所有 10A 型别)，和其它手册或检查要求。/Refer to GE Engine Manual GEK 112081(all 10E models), GEK112091(all 10A models), and other manual or inspection requirements when limits are exceeded. 100%N1 转速为 5954.4RPM，100%N2 转速为 17160RPM (所有 10E/10A 型别)。/100 percent N1 rotor speed is 5954.4 rpm, 100 percent N2 rotor speed is 17,160 rpm (all 10E/10A models).		

注 2/NOTE 2、

(1) 最大允许指示温度如下表所列。另外，风扇转速高于慢车时，CF34-10E2A1 型发动机的 EGT 有 30°C 偏移，因此指示 1801°F (983°C) EGT 时，测量 EGT 为 1747°F (953°C)。所有的 CF34-10E/10A 型发动机起飞 EGT 允许瞬时超温。可接受的正常和最大起飞 EGT 瞬时超出量为：最大到 5.5°C 持续 2 秒，最大到 4.4°C 持续 5 秒，最大 3.6°C 持续 15 秒，最大 2.4°C 持续 30 秒。/Indicated maximum permissible temperatures are listed below. In addition, the CF34-10E2A1 model incorporates an EGT shunt of 30°C at fan speeds above idle. Thus, for an indicated EGT of 1801°F (983°C), the measured EGT is 1747°F (953°C). All CF34-10E/10A series engines are certified with a takeoff EGT transient allowance. This allowance applies to normal and maximum takeoff EGT, up to 5.5 °C for 2 seconds, 4.4 °C for 5 seconds, 3.6 °C for 15 seconds and 2.4 °C for 30 seconds.

指示排气温度 (EGT) /Indicated Exhaust Gas Temperature (EGT*), °F (°C),							
	CF34-10E2A1	CF34--10E5	CF34--10E5A1	CF34--10E6	CF34--10E6A1	CF34-10E7	CF34--10E7-B
最大起飞 (5 分钟) / Maximum takeoff (5 min)	1801(983)	1801(983)	1801(983)	1801(983)	1801(983)	1801(983)	1801(983)
正常起飞 (5 分钟) / Normal takeoff (5	1801(983)	1733(945)	1801(983)	1737(947)	1801(983)	1729(943)	1729(943)

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min)							
最大持续/ Maximum continuous	1760(960)	1760(960)	1760(960)	1760(960)	1760(960)	1760(960)	1760(960)
地面起动/At start-up, ground	1364(740)	1364(740)	1364(740)	1364(740)	1364(740)	1364(740)	1364(740)
空中起动/At start-up, in flight	1607(875)	1607(875)	1607(875)	1607(875)	1607(875)	1607(875)	1607(875)

指示排气温度 (EGT*) /Indicated Exhaust Gas Temperature (EGT*), °F (°C),		
CF34-	10A16	10A18
最大起飞 (5 分钟) / Maximum takeoff (5 min)	1801(983)	1801(983)
正常起飞 (5 分钟) / Normal takeoff (5 min)	1744(951)	1746(952)
最大持续/ Maximum continuous	1760(960)	1760(960)
地面起动/ At start-up, ground	1364(740)	1364(740)
空中起动 At start-up, inflight	1607(875)	1607(875)

*排气温度通过 9 个探头测量，平均布置安装在第二级低压涡轮静叶上。/The exhaust gas temperature is measured by 9 probes, which are equally spaced and mounted in the second-stage low-pressure turbine vanes.

(2) 当发生超限时，参考 GE 发动机手册 GEK 112081 (CF34-10E 所有型别)，GEK 112091 (CF34-10A 所有型别) 的检查要求。/Refer to GE Engine Manual GEK 112081 (CF34-10E all models), GEK 112091 (CF34-10A all models) for inspection requirements when limits are exceeded.

(3) 滑油温度限制(滑油供油温度在滑油箱内测量) /Oil temperature limit (oil supply temperature measured in the oil tank), °F (°C)

	<u>所有 10E 型别/All 10E models</u>	<u>所有 10A 型别/All 10A models</u>
持续运行/Continuous operation	311°F (155°C)	311°F (155°C)

(4)燃油进口温度(吊架接口处)/ Fuel inlet temperature (at pylon interface), °F (°C)

	<u>所有 10E 型别/ All 10E models</u>	<u>所有 10A 型别/All 10A models</u>
持续运行/Continuous operation	155°F (68.3°C)	135°F (57.2°C)

注 3/NOTE 3. 燃油和滑油压力限制 FUEL AND OIL PRESSURE LIMITS

(1) 燃油/Fuel: 对于所有 10E 型别，在发动机泵进口处：当飞机增压泵工作时，对于气液比为 0 的燃油，至少比真实燃油蒸汽压力高 5PSID；工作范围是 5PSIG 至 50PSIG。在发动机动流出口处：在慢车或以上状态时，最小压力为 150PSIG，工作范围为 150PSIG 至 1209PSIG。其它限制见 GE 安装手册 GEK 112083。/At engine pump inlet: minimum pressure of 5 PSID above the true vapor pressure of the fuel with a vapor/liquid ratio of zero with aircraft boost operative. Operating range 5 PSIG to 50 PSIG. At engine motive flow discharge: minimum pressure of 150

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PSIG at idle or above. Operating range is 150 PSIG to 1209 PSIG. See GE Installation Manual GEK 112083 for additional limits.

对于所有 10A 型别, 在发动机泵进口处: 当飞机增压泵工作时, 对于气液比为 0 的燃油, 至少比真实燃油蒸汽压力高 5PSID; 工作范围是 5PSIG 至 50PSIG。其它限制见 GE 安装手册 GEK 112093。/ For all 10A models, at engine pump inlet: minimum pressure of 5 PSID above the true vapor pressure of the fuel with a vapor/liquid ratio of zero with aircraft boost operative. Operating range 5 PSIG to 50 PSIG. See GE Installation Manual GEK 112093 for additional limits.

- (2) 滑油/Oil: 最小滑油压力限制是 25PSID。当滑油温度低于 -20°C , 发动机启动后最初 2 分钟内最小滑油压力为 5PSID。2 分钟后, 慢车状态或发动机功率增加高于慢车以上状态时, 最小滑油压力为 25PSID。其它限制见 GE 安装手册 GEK 112083 (所有 10E 型别), GEK 112093 (所有 10A 型别)。/Minimum oil pressure limit is 25 psid. For oil temperatures less than -20°C , the minimum oil pressure is 5 psid for the first two minutes following an engine start. After two minutes at idle or if the engine power is increased above idle, the minimum oil pressure is 25 psid. See GE Installation Manual GEK 112083 (10E all models), GEK 112093 (10A all models) for additional limits.

所有 10E 型别/All 10E models:

附件 Accessory	AGB 轴位 置 Location on AGB Axis	转速 Speed (RPM)	马力(额 定) HP (Rated)	旋转方向 Direction of Rotation facing AGB	扭矩(磅-英寸), 静态/持续/过载 Torque (lb-in) Static / Continuous / Overload	最大附件 重量(磅) Max Acc. Wt. (lb)	瞬间悬垂 力矩(磅-英 寸) Overhung Moment (lb-in)	剪切力矩 (磅-英寸) Shear Torque (lb-in)
滑油泵 Lube & Scavenge Oil Pump	Axis-J Aft	8575	7	CCW	300 (1) / 48 / NA	10.3	33	750-850
整体驱动发 电机/IDG	Axis-G Fwd	7928	74.8 (2)	CW	675 (1) / 595 / 1129 (5 min) (4) 1605 (5 sec) (4)	81.2 (6)	720 Maximum	3144-3648
涡轮起动机 Air Turbine Starter	Axis-D Fwd	12281	NA	CW	2112, 4200 (3) / NA / NA	27.7	113	6300-7500
液压泵 Hydraulic Pump	Axis-F Fwd	5567	35	CW	573 (1) (5) / 392 / 670	13.9 dry	38.4	2004 maximum
交流发电机 Alternator	Axis-J Fwd	8575	4	CW	NA / NA / NA	3.0	2.6	NA
燃油泵 Fuel Pump	Axis-E Aft	7928	55	CW	150/240/NA	28.6	142	1400-1540
CW—顺时针方向 CCW—逆时针方向 CW – Clockwise CCW - Counter Clockwise 附件速度是基于核心机速度: 17160RPM。								

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Accessory Speeds are based on Core Speed: 17160 rpm

- (1) -40°F 标准海平面/SLS
- (2) 由于因效率改变导致的变化很微小，可以认为 HP（马力）在整个工作范围内是基本不变的。在 7898RPM（盘速度）时是 74.8 马力，4618RPM（盘速度）时是 73.5 马力。5 分钟过载额定值是 82.7 马力，5 秒钟过载额定值是 137.37 马力。/HP is constant over the operating range with slight variations due to changes in efficiency. HP extraction is 74.8 HP at 7898 rpm (pad speed) and 73.5 HP at 4618 rpm (pad speed). The 5 minute overload rating is 82.7 HP and the 5 second overload rating is 137.37
- (3) 在 59°F SLS 为 2112 磅-英寸，在-40°F SLS 为 4200 磅-英寸。 /2112 in-lbs at 59°F SLS, 4200 in-lbs at -40°F SLS
- (4) 过载为 4618RPM（盘速度） /Overload at 4618 rpm (pad speed)
- (5) 626RPM 时（盘速度）为 573 磅-英寸。 /573 in-lbs at 626 rpm (pad speed)
- (6) 包括滑油和 V 型连接器。 /Includes oil and V band coupling

所有 10A 型别/All 10A Models:

附件 Accessory	AGB 轴位置 Location on AGB Axis	马 力 (额定) HP (Rated)	旋 转 方 向 Direction of Rotation facing AGB	最大重 量 (磅) Max Weight (lb)	瞬间悬 垂力矩 (英寸 -磅) Overhung Moment (in-lb)	实 际 最 大 剪 切 力矩 Actual Max Shear Torque	速度状态 Speed Condition	额 定 转 速 Speed Ratings (rpm)			力矩状态 Torque Condition		力矩 (英寸- 磅) Torque (in-lb)	
滑 油 泵 Lube & Scavenge Oil Pump	Axis-A, AFT	6.0	CW	16.2	59.94	750 -850	额定 rated	7,982		静态 static	33	(22)		
							最大持续 max continuous	8,381		最大持续 Max continuous	47	(2)		
							任务时间- 加权平均 mission time-weight average			任务时间-加权平均 (消耗) mission time-weight average(consumption)	10	(24)		
							峰值 peak	9,638	(3)	峰值 peak	56	(23)		
整体驱动 发电机 IDG	Axis-F, FWD	76.5	CCW	80	610	3150 -3650	额定 rated	4,618	(14)	静态 static	675	(4)		
							最大持续 max continuous	8,438	(14)	最大持续 Max continuous	610	(5)		
							任务时间- 加权平均 mission time-weight average			任务时间-加权平均 (消耗) mission time-weight average(consumption)				
							峰值 peak	8,860	(6)	峰值 peak	2,184	(7)		

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空气涡轮 启动装置 Air Turbine Starter	Axis-C, FWD	N/A	CCW	29.46	125.91	6300 -7500	额定 rated	N/A		静态 static	3360	
							最大持续 max continuous	12,962		最大持续 Max continuous	N/A	
							任务时间- 加权平均 mission time-weight average			任务时间-加权平均 (消耗) mission time-weight average(consumption)	N/A	
							峰值 peak	15,122		峰值 peak	N/A	
液压泵 Hydraulic Pump	Axis-D, AFT	38.0	CCW	14.35	39.59	2000 MAX	额定 rated	5,319		静态 static	550	(8)
							最大持续 max continuous	5,593		最大持续 Max continuous		
							任务时间- 加权平均 mission time-weight average			任务时间-加权平均 (消耗) mission time-weight average(consumption)	108	(17)
							峰值 peak	6,432	(9)	峰值 peak	670	(10)
交流发电 机 Alternator	Axis-G, FWD	0.4	CW /CCW	3.04	2.16	N/A	额定 rated	8,575		静态 static	N/A	(18)
							最大持续 max continuous	9,433		最大持续 Max continuous	3.5	(19)
							任务时间- 加权平均 mission time-weight average	6,860		任务时间-加权平均 (消耗) mission time-weight average(consumption)	2.1	(20)
							峰值 peak	10,718	(13)	峰值 peak	5.8	(21)
燃油泵 Fuel Pump	Axis-E, FWD	55.0	CCW	20.54	73.94	1400 -1540	额定 rated	7,888		静态 static	90	(11)
							最大持续 max continuous	10,128		最大持续 Max continuous	210	(12)
							任务时间- 加权平均 mission time-weight average			任务时间-加权平均 (消耗) mission time-weight average(consumption)	135	

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							峰值 peak	10,179	(15)	峰值 peak	353	(16)
CW-顺时针方向, CCW-逆时针方向 CW-Clockwise, CCW-Counter Clockwise (1) 冷起动状态提取 11.3 马力。假定以最大连续起动机驱动速度来进行静态力矩估算。/ Cold Start condition 11.3HP extraction. Assumed max continuous starter cranking speed for static torque estimation. (2) 在 6 马力输入且额定速度 7982RPM 条件下计算。/ Calculated at rated speed of 7982 rpm at 6 HP input. (3) 5 分钟最大值 / 5 min max. (4) 在-40° F 下冷起动, 且最大加速率为 450RPM/s。力矩峰值在 500RPM。在速度为零时力矩为零。/ Cold start @ -40F and max ramp rate of 450 rpm/sec. Torque peaks at 500 rpm. Zero Torque at zero speed. (5) 在连续工作点 76.5 马力和 7898RPM 条件下计算。/ Calculated at continuous operating point 76.5 HP and 7898 rpm. (6) 20 秒最大值。/ 20 sec. max (7) 在 160 马力和 4618RPM 条件下的 5 秒最大值。/ 5 sec max at 160 HP and 4618 rpm. (8) 冷起动状态, 在 65 秒内完成从 0 到 11019RPM 的加速。/ Cold Start condition ramp rate from 0 to 11,019 rpm in 65 seconds. (9) 90 小时最大值。/ 90 hrs max. (10) 泵控制系统失效或高压瞬态。/ Failure of pump control system or high pressure transients. (11) 在泵转速 623RPM 时的风车状态阻力矩。/ Windmilling drag torque at 623 rpm pump speed. (12) MEPS 状态-33°F 和起飞状态。发生概率百万分之一。/ MEPS Condition -33F and Takeoff conditions. One in a Million probability of occurrences. (13) 5 分钟最大值。/ 5 min max. (14) 液压速度控制系统接受 4618-8438 RPM 范围内的输入。可以在 6000+/-200RPM (“直接穿过”速度) 工作最长 15 分钟。/ Hydraulic speed control system accepts inputs in 4618-8438 rpm range. May operate at 6000 +/- 200 rpm(‘straight through’ speed) for 15 min max. (15) 30 秒最大值。/ 30 sec. Max. (16) 无限寿命周期载荷。/ Infinite life cyclic load. (17) 文件 “EDP FICD, 2711C007(E)/R2004AE573, May 5,2007” 中 ARJ21 任务剖面的“冷天”时间加权平均。/ Time weighted average of ‘cold day’ ARJ21 mission profile in document “EDP FICD, 2711C007(E)/R2004AE573, May 5,2007”. (18) 交流发电机在低于 50%转速下不能加载。发动机电子控制部件可通过外部 GSE 供电。/ Alternator not electrically loaded below 50% speed. Engine electronics powered externally by GSE. (19) 在 375°F 和直至 80%转速下的最大交流发电机输出功率(2* 124 瓦)。80%转速是 ARJ21 任务剖面的时间加权平均。/ Max Alternator Output Power (2* 124w) at 375F and ~80% speed. 80% speed is time weighted average for ARJ21 Mission Profile. (20) 在 375°F 和直至 80%转速下的最大 FADEC 消耗 (2* 70 瓦)。80%转速是 ARJ21 任务剖面的时间加权平均。/ Max FADEC Consumption (2* 70W) at 375F and ~80% speed. 80% speed is time weighted average for ARJ21 Mission Profile. (21) 在 375°F 和直至 50%转速下的最大交流发电机输出功率(2* 124 瓦)。50%转速是交流发电机“活跃起来”的速度。/ Max Alternator Output Power (2* 124w) at 375F and ~50% speed. 50% speed is alternator ‘come alive’ speed. (22) 冷起动条件下的峰值释放压力为 188psig, 滑油供油流量为 7.03gpm (滑油温度为 20°F), 回油压力为 6 psig。/ Peak cold start condition at peak relief pressure=188 psig, supply flow= 7.03 gpm, and 20F, scavenge discharge press =6 psi g. (23) 异常状况下(滑油超出勤务标准)冷起动至慢车。滑油供油压力为 188 psig, 供油流量为 7.03 gpm, 回油流量为 21.2 gpm, 回油压力为 57 psig, 滑油温度为 20°F。/ Abnormal case of oil over-service cold start to idle. Supply press =188 psig, supply flow =7.03 gpm, scavenge flow =21.2 gpm, scavenge discharge press =57 psig, 20F oil. (24) L/S 任务力矩由 Lear Romac 提供, 滑油系统工作条件由 GE 机械系统提供, 转速由 GE 性能提供, 任务由飞机制造商提供。/ L/S mission torque supplied by Lear Romac, Lube system operating conditions supplied by GE Mechanical Systems, Speeds supplied by GE performance, Mission supplied by Airframer.												

注 5/NOTE 5. 发动机额定功率是基于校准的试车台性能, 性能计算是基于生产型数据资料采用的可接受的参数修正方法。
这些计算基于以下假设条件: /Engine ratings are based on calibrated test stand performance, and performance

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calculations are based on accepted parameter correction methods documented in the production data folder. These calculations assume the following conditions:

1. 标准海平面静态条件, 59°F 和 29.92 英寸汞柱 /Static sea level standard conditions of 59°F and 29.92 inches Hg.
2. 无飞机附件负载或引气提取。/No aircraft accessory loads or air extraction.
3. 无防冰; 无进气道畸变; 无进气滤网损失; 100%冲压恢复。/No anti-icing; no inlet distortion; no inlet screen losses; and 100% ram recovery.
4. 生产型发动机进气道和生产型飞行排气系统。/Production engine inlet and production flight exhaust system

注 6/NOTE 6. 引气提取—最大客户端引气提取如下: 在所有工作条件下或在慢车以上状态, 5 级或 9 级压气机出口的引气提取可用 (慢车以下状态, 不允许从压气机处引气)。客户端引气在低功率时取自第 5 级, 高功率时取自第 9 级。GE 安装手册 GEK112083 (CF34-10E 所有型别) 和 GEK112093 (CF34-10A 所有型别) 中有相关说明。
/Air Bleed Extraction - maximum customer air bleed extraction is as follows: Customer bleed air is available from either stage 5 or 9 (compressor discharge) of the compressor at all operating conditions at or above idle (No compressor bleed is permitted below idle). Customer bleed is scheduled to switch from stage 9 bleed at low power operation to stage 5 bleed at high power operation as described in GE Installation Manual GEK 112083 (CF34-10E all models) and GEK 112093 (CF34-10A all models).

位置 Location	最大验明引气 (占整个压气机流量的百分比) Maximum Demonstrated Bleed Air (% of Total Compressor Airflow) CF34-10E/10A (所有型别/all models)
压气机 5 级 /Compressor Stage 5	8.0
压气机 9 级 (压气机出口) /Compressor Stage 9 (Compressor Discharge)	12.0
最大允许引气 /Maximum Allowable Bleed	12.0

注 7/NOTE 7. 保留/Reserved

注 8/NOTE 8. 最大允许的进气畸变在发动机手册 GEK 112083 (CF34-10E 所有型别) 和 GEK 112093 (CF34-10A 所有型别) 中有注明。侧风情况下地面操作限制和程序在 GE 特殊操作指南 GEK 112084 (CF34-10E 所有型别) 和 GEK 112094 (CF34-10A 所有型别) 中有说明。/The maximum permissible inlet distortion for these engines is specified in GE Installation Manual GEK 112083 (CF34-10E all models) and GEK 112093 (CF34-10A all models). Ground operational limits and procedures for operation in crosswind are specified in GE Specific Operating Instructions GEK 112084 (CF34-10E all models) and GEK 112094 (CF34-10A all models).

注 9/NOTE 9. 对于 CF34-10E/10A 系列发动机, 14CFR33 部发动机型号设计的定义包括作为短舱系统一部分的反推装置系统。件号如下表所列: /For the CF34-10E/10A model series, the 14CFR Part 33 engine type design definition includes thrust reverser system, which is part of the nacelle system, and is identified as follows:

发动机部件清单/Engine Parts List	反推装置部件清单/Thrust Reverser Parts List
CF34-10E2A1GXX	601E0001-5XX
CF34-10E5GXX	601E0001-5XX
CF34-10E5A1GXX	601E0001-5XX

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CF34-10E6GXX	601E0001-5XX
CF34-10E6A1GXX	601E0001-5XX
CF34-10E7GXX	601E0001-5XX
CF34-10A16GXX	604C0010-5XX
CF34-10A18GXX	604C0010-5XX
发动机手册 GEK 112081 (CF34-10E 所有型别) 和 GEK 112091 (CF34-10A 所有型别) 详细说明了 GXX 或 -5XX 代表的所有部件清单的安装要求, 例如 G01、G02、-501、-502 等等。/The Engine Manual, GEK 112081 (CF34-10E all models) and GEK 112091 (CF34-10A all models), defines the installation requirements for the engine GXX or -5XX indicates all parts list designations, for example G01, G02, -501, -502, etc.	

注 10/NOTE 10. 关键件的寿命限制和强制检查要求在发动机手册 GEK112081(CF34-10E 所有型别)和 GEK 112091(CF34-10A 所有型别) 的适航限制部分有详细说明。推荐的维修检查间隔公布在 GE 发动机手册 112081 (CF34-10E 所有型别) 和 GEK 112091 (CF34-10A 所有型别) 中。/Life limits established for critical components and mandatory inspection requirements are specified in the Airworthiness Limitation Section of GE Engine Manual GEK 112081 (CF34-10E all models) and GEK 112091 (CF34-10A all models). Recommended maintenance inspection intervals are published in GE Engine Manual GEK 112081 (CF34-10E all models) and GEK 112091 (CF34-10A all models).

注 11/NOTE 11. 保留/Reserved

注 12/NOTE 12. 在发动机安装的时候, 必须注意 GE 安装手册 GEK 112083 (CF34-10E 所有型别) 和 GEK 112093 (CF34-10A 所有型别) 中列出的特殊零部件的工作温度限制。/The operating temperature limits for specific components and accessories specified in GE Installation Manual GEK 112083 (CF34-10E all models) and GEK 112093 (CF34-10A all models) must be observed when installing the engine.

注 13/NOTE 13. 保留/Reserved

注 14/NOTE 14. 对于 CF34-10E/10A 系列发动机, 以下手册已被批准或接受: /The following manuals are approved or accepted for the CF34-10E model series:

	CF34-10E (所有型别/all models)	CF34-10A (所有型别/all models)
操作指南 Operating Instructions	GEK 112084	GEK 112094
安装手册 Installation Manual	GEK 112083	GEK 112093
发动机手册 Engine Manual	GEK 112081	GEK 112091*

* 发动机手册 GEK 112091 尚未批准。安装 CF34-10A 发动机的任何飞机不可颁发单机适航证, 除非其持续适航文件已经完备并获得发动机审定办公室认可。/The Engine Manuel GEK 112091 is not approved. Any aircraft with CF34-10A model engine(s) installed is not eligible for airworthiness certificate until this ICA is completed and accepted by the Engine Certification Office.

注 15/NOTE 15. 本发动机安装了在起飞时一发不工作的情况下的自动推力功能系统。在起飞期间, 当自动推力功能被激活, 不工作的发动机控制会发一个信号给工作中的发动机控制系统。根据收到的信号, 工作中的发动机会自动的由正常起飞 (NTO) 时相应的低推力提高到最大起飞推力 (MTO)。全最大起飞推力可以通过飞行员在任何时间的手柄操作来实现。/This engine is equipped with an automatic power reserve function for takeoff operation with one engine inoperative. During takeoff, when the automatic power reserve function is activated, the engine control of the inoperative engine sends an input signal to the engine control of the operating engine. Upon receiving this signal, the engine thrust of the operating engine automatically increases from normal takeoff (NTO)

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or lower thrust to the corresponding, pre-determined maximum takeoff (MTO) thrust. Full MTO thrust is available to the pilot at any time by throttle selection.

在自动推力控制功能激活的情况下，即使一台发动机功能退化，发动机控制系统也可以保证在正常起飞的低推力情况下完成最大起飞推力的转换，并且不超出发动机操作限制。/The engine control system also incorporates schedules that assure a fully degraded engine, during operation at the NTO of lower thrust, will achieve the specified MTO thrust without exceeding the engine operating limits when the automatic power reserve function is activated.

注 16/NOTE 16. 正常起飞功率情况下的时间限制是 5 分钟，包括起飞期间超过正常起飞功率的任何时间。对于多发飞机的单发不工作时，5 分钟的起飞限制时间可以延长到 10 分钟。/The time limit at the normal takeoff rating is five minutes and shall include any time accumulated above the normal takeoff rating for that takeoff. The 5-minute takeoff time limit may be extended to 10 minutes for one engine inoperative operation in multi-engine aircraft.

注 17/NOTE 17. 放行时间限制标准/TIME LIMITED DISPATCH CRITERIA

关于发动机控制系统的放行和维护要求在发动机手册 GEK 112081 (CF34-10E 所有型别) 和 GEK 112091 (CF34-10A 所有型别) 的适航部分中有详细说明，手册中定义了多种构型的最大工作间隔。/Criteria pertaining to the dispatch and maintenance requirements for the engine control systems are specified in the airworthiness section of the Engine Manual, GEK 112081 (CF34-10E all models) and GEK 112091 (CF34-10A all models), which defines the various configurations and maximum operating intervals.

注 18/NOTE 18. 发动机的部件翻修只能根据批准的发动机手册。没有批准的或可接受的手册的发动机部件只能用更换新件或可用的件。/Overhaul of Engine Components is only authorized via approved Manuals. Engine components for which no approved or accepted Manual is available must be replaced with new ones or serviceable parts.

注 19/NOTE 19. 发动机 warm-up 程序要根据操作指南 GEK 112084 (CF34-10E 所有型别) 和 GEK 112094 (CF34-10A 所有型别) 进行。/Refer to Operating Instructions GEK 112084 (CF34-10E all models) and GEK 112094 (CF34-10A all models) for engine warm-up procedure.

注 20/NOTE 20. 发动机反推操作要根据操作指南 GEK 112084 (CF34-10E 所有型别) 和 GEK 112094 (CF34-10A 所有型别) 进行。/Refer to Operating Instructions GEK 112084 (CF34-10E all models) and GEK 112094 (CF34-10A all models) for thrust reverser operation.

注 21/NOTE 21. 以上型号发动机包含以下典型特性: The above models incorporate the following characteristics:

型号/Model	特性/Characteristics
CF34-10E2A1	基本型号/Basic Model
CF34-10E5	基本型号/Basic Model
CF34-10E5A1	基本型号/Basic Model
CF34-10E6	基本型号/Basic Model
CF34-10E6A1	基本型号/Basic Model
CF34-10E7	基本型号/Basic Model
CF34-10A16	基本型号/Basic Model
CF34-10A18	基本型号/Basic Model

--结束--
-- END--