

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

	中国民用航空总局认可数据单号、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	No. VTC0232E, 版次 0 2009 年 12 月 17 日	FAA TCDS No. E4CE, Revision 40, Dec. 21, 2007
历史 History		

2. 类别/Category: 航空发动机/Aeroengine
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: Rolls-Royce Corporation
P.O. Box 420
Indianapolis, Indiana 46206-0420
6. ETOPS: 不适用/NA
7. CAAC 专用要求/Special Requirements: 无/NONE

第2部分

SECTION 2

类型/Type

轴流离心压气机, 两级燃气发生器涡轮, 两级动力涡轮和单燃烧室自由涡轮涡轴发动机。

Free turbine turboshaft with axial centrifugal compressor, 2-stage gas producer turbine, 2-stage power turbine and single combustion chamber.

轴率/Shaft ratio

250-C20B	250-C20J	250-C20R/2	250-C20W
5.53:1	5.53:1	5.53:1	5.53:1

额定值 (见注 3) /Ratings(See NOTE 3)

	250-C20B	250-C20J	250-C20R/2	250-C20W
最大连续/Max continuous				
海平面轴马力/ SHP at sea level	420	420	450	420
燃气发生器转速/ Gas producer rpm	53000	53000	50537	51790
输出轴转速/ Output shaft rpm	6016	6016	6016	6016
测量燃气温度/ Measured gas temp	1490°F (810°C)	1490°F (810°C)	1423°F (773°C)	1490°F (810°C)
起飞, 5分钟/Takeoff, 5 min				
海平面轴马力/ SHP at sea level	420	420	450	420
燃气发生器转速/ Gas producer rpm	53000	53000	50537	51790
输出轴转速/ Output shaft rpm	6016	6016	6016	6016
测量燃气温度/ Measured gas temp	1490°F (810°C)	1490°F (810°C)	1423°F (773°C)	1490°F (810°C)
起飞, 5分钟增强/Takeoff, 5 min augmented				
海平面轴马力, 环境温度95°F/ SHP at sea level, 95°F ambient temp	420	420	—	—
输出轴转速/ Output shaft rpm	6016	6016	—	—
测量燃气温度(见注14)/Measured gas temp (see Note 14)	1490°F (810°C)	1490°F (810°C)	—	—
30分钟单发失效/30 minute OEI				
海平面轴马力/ SHP at sea level	420	420	450	420
燃气发生器转速/ Gas producer rpm	53000	53000	50537	51790
输出轴转速/ Output shaft rpm	6016	6016	6016	6016
测量燃气温度/ Measured gas temp	1490°F (810°C)	1490°F (810°C)	1490°F (810°C)	1490°F (810°C)

输出轴/Output shaft		内花键/Internal spline			
燃油/Fuel		MIL-T-5624, Grade JP-4 or JP-5; Aviation Turbine Fuels per ASTM D1655, Jet A or A-1 (or Rolls-Royce Corp Spec. EMS-64) or Jet B; MIL-T-83133, Grade JP-8; JP-1 or Diesel #1 fuel conforming to ASTM D1655, Jet A; Arctic Diesel Fuel DF-A (W-F-800B) conforming to ASTM D1655, Jet A or Jet A-1; 其他燃油和限制见注9/for other fuel and limitations, see Note 9			
润滑油/ Lubricating oil		MIL-L-7808F或MIL-L-23699及后续改进牌号/ MIL-L-7808F or MIL-L-23699 and subsequent revisions			
主要尺寸/Principal dimensions					
全长 (英寸) / Length overall, in.		40.81	40.81	40.865	40.756
宽 (英寸) / Width, in.		19.01	19.01	20.76	18.784
高 (英寸) / Height, in.		23.20	23.20	23.196	22.596
重心位置, 侧安装盘中心线后方 (英寸) /CG location, aft of side mount pad centerline, in.		5.48	5.14	4.66	5.31
重心位置, 盘中心线上方 (*下方) (英寸) /CG location, above pad centerline, in. (*below)		0.88	0.63	0.75	0.77*
重心位置, 发动机中心线右侧 (* 左侧) (英寸) /CG location, right of eng centerline, in. (*left)		0	0.04	0.18	0.08*
重量 (干重) , 磅/Weight (dry), lbs.					
包括基本发动机, 燃油泵和过滤器, 点火和燃油控制系统/ Includes basic engine, fuel pump and filter, ignition and fuel control system.		158	158	—	162
带有1级涡轮内部能量吸收环/ With first stage turbine wheel internal energy absorbing ring		161	161	169	—

审定基础/Certification basis

1956年6月15日生效的民用航空规章第13部 (CAR13), 第13-1、13-2和13-3修正案及关于CAR13.211条的豁免No. 219B, 1962年8月6日颁发, 分别在1980年6月12日和1991年12月10日修订。型号合格证1961年9月15日申请, 1962年12月19日最初颁发, 编号为E4CE。250-C20B于1974年2月28日加入; 250-C20J于1981年9月15日加入; 250-C20R/2于1987年3月5日加入; 250-C20W于1990年4月20日加入。

Part 13 of the Civil Air Regulations effective June 15, 1956, as amended by 13-1, 13-2 and 13-3, and Exemption No. 219B from CAR 13.211, Regulatory Docket 1337 issued August 6, 1962, and amended May 12, 1980 and December 10, 1991. Application for Type Certificate dated September 15, 1961. Type Certificate No. E4CE issued December 19, 1962, for Model 250-C10; Models 250-C10B, 250-C18 and 250-C18A added September 9, 1965; Models 250-C18B and 250-C18C added September 25, 1967; Model 250-C19 added April 29, 1968; Model 250-C10D added November 15, 1968; Model 250-C20 added April 22, 1970; Model 250-C20B added February 28, 1974; Model 250-C20C added June 9, 1976; Model 250-C20F added March 2, 1979; Model 250-C20J added September 15, 1981; Model 250-C20S added December 30, 1983; Model 250-C20R/1 added September 12, 1986; Model 250-C20R/2 added March 5, 1987; Models 225-C10 and 225-C10A added March 20, 1987; Model 250-C20R added September 29, 1989;

Model 250-C20R/4 added December 5, 1989; Model 250-C20W added April 20, 1990; Model 250-C300/A1 added 21 December 2007.

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.

同时，考虑该产品的持续适航性，所有 FAA 颁发的适用的适航指令将作为附加技术条件。

Considering product continues airworthiness, all applicable FAA airworthiness directives will be determined as Additional Technical Condition (ATC).

生产基础/Production basis

生产合格证 No. 310

Production Certificate No. 310

注1/NOTE 1

最大许用温度/Maximum allowable temperatures

	测量的燃气温度/ Measured gas temperature – °F (°C)				滑油进口温度/ Oil inlet temp – °F (°C)	
	起飞和30分钟 单发失效功率/ Takeoff and 30-min (OEI) power	最大连续/ Max continuous	最大瞬时/ Max transient	起动/ Starting ⁽⁵⁾	MIL-L-7808F	MIL-L-23699 或 AS 5780 HPC
250-C20B, -C20J, -C20W	1490 (810)	1490 (810)	1490 (810) to 1550 (843) ⁽¹⁾ 1490 (810) to 1650 (899) ⁽²⁾	1490 (810) to 1700 (927) ⁽⁴⁾	–65 (–54) to 225 (107)	–40 (–40) to 225 (107)
250-C20R/ 2	1490 (810)	1490 (810)	1490 (810) to 1650 (899) ⁽¹⁾⁽²⁾	1490 (810) to 1700 (927) ⁽⁴⁾	–65 (–54) to 225 (107)	–40 (–40) to 225 (107)

(1) 不超过6秒。

Not to exceed six seconds.

(2) 从6秒到最大不超过12秒。每一涡轮盘的寿命期内最多3次。

From six seconds not to exceed a maximum of 12 seconds. Maximum of three occurrences per life of each turbine wheel.

(3) 最大6秒。

Six seconds maximum.

(4) 最大10秒。

Ten seconds maximum.

(5) 所有型号，起动时最大温度1700°F (927°C)，不超过1秒是允许的。

For all models, the maximum temperature during start, 1700°F (927°C), is allowed for a period not to exceed one second.

注2/NOTE 2

燃油进口和滑油压力限制/Fuel inlet and oil pressure limits

燃油进口压力限制（适用于 MIL-T-5624 和 ASTM D1655 Jet A 或 A-1）

Fuel inlet pressure limits (applicable to MIL-T-5624 and ASTM D1655 Jet A or A-1 fuels)

	最小燃油进口压力/Minimum fuel inlet pressure						最大燃油进口压力/Maximum fuel inlet pressure
	海平面/ Sea level	6000 ft	10000 ft	15000 ft	20000 ft	25000 ft	
250-C20B, -C20J, -C20R/2, -C20W	周围环境 减去 9 英 尺汞柱/ Ambient minus 9 in Hg	周围环境 减去 5.5 英 尺汞柱/ Ambient minus 9 in Hg	周围环境 减去 3.3 英 尺汞柱/ Ambient minus 9 in Hg	周围环境 减去 0.8 英 尺汞柱/ Ambient minus 9 in Hg	周围环境 加上 1.5 英 尺汞柱/ Ambient minus 9 in Hg	周围环境 加上 3 英尺 汞柱/ Ambient minus 9 in Hg	25psig

(1) MIL-G-5572 燃油不允许燃油入口减压。

No fuel inlet depression permitted with MIL-G-5572 fuel.

(2) 250-C20R/2 型，作为 P/N 23053265 的发动机（安装集成件号 P/N 23053267）的燃油压力要求不同，见安装设计手册 GTP 5232-5。

Fuel pressure requirement is different for Model 250-C20R/2, P/N 23053265 engine (P/N 23053267 Installation Assembly). See Installation Design Manual, GTP 5232-5.

滑油压力限制/Oil pressure limits

	运行滑油表压力/Operating oil gauge pressure (psig)						最小滑油泵进口压力/ Minimum oil pump inlet pressure
	49586 转/分 (97%) 燃气发生器涡轮转速及以上/ 49586 rpm (97.0%) gas producer turbine speed and above	39874 转/分 (78%) 到 49586 转/分 (97%) 燃气发生器涡轮转速/ 39874 rpm (78.0%) gas producer turbine speed to 49586 rpm (97.0%)	低于 39874 转/分 (78%) 燃气发生器涡轮转速/ Below 39874 rpm (78.0%) gas producer turbine speed	48014 转/分 (94.2%) 燃气发生器涡轮转速及以上/ 48014 rpm (94.2%) gas producer turbine speed and above	40011 转/分 (78.5%) 到 48014 转/分 (97%) 燃气发生器涡轮转速/ 40011 rpm (78.5%) gas producer turbine speed to 48014 rpm (94.2%)	低于 40011 转/分 (78.5%) 燃气发生器涡轮转速/ Below 40011 rpm (78.5%) gas producer turbine speed	
250-C20B, -C20J, -C20W	—	—	—	115—130	90—130	50—130	5 英寸汞柱 绝对压力/ 5 in Hg absolute
250-C20R/2	—	—	—	120—130	90—130	50—130	5 英寸汞柱 绝对压力/ 5 in Hg absolute

注3/NOTE 3:

除非另有说明，发动机的额定值都是基于静态海平面标准条件。压气机进口空气（干）59°F，29.92 英寸汞柱。安装压气机钟形进口以提供匹配的近似空气条件。无外部附件载荷和引气。测量额定燃气温度显示 4 个燃气温度传感器的平均值。某些型号仅用于军用，其功率额定值由军方指定，但与此处列出的相当。

The engine ratings, unless otherwise specified, are based on static sea level standard conditions. Compressor inlet air (dry) 59° F, 29.92 in. Hg. Compressor inlet bell attached to provide suitable air approach conditions. No external accessory load and no air bleed. Measured rated gas temperature as indicated by average of the four gas temperature thermocouples. Certain models are intended for military use only. The power ratings for these models have been redesignated by the military, but are equivalent to the ratings listed herein.

注4/NOTE 4

附件驱动或安装规定如下：

The following accessory drive or mounting provisions are available:

	旋转方向/ Direction of rotation *	与涡轮的速比/ Speed ratio to turbine	最大扭矩（英寸—磅） Maximum torque (in-lb)		最大悬臂力矩/ Maximum overhang moment (in-lb)
			连续/ Continuous	静态/ Static	
由燃气发生器涡轮驱动/Driven by gas producer turbine					
备用/Spare ** (-C20B, J)	C	0.0728	35	75	30
转速表/Tachometer *	CC	0.0824	7	50	4
起动-发电机(所有型号)/ Starter-generator (all other models)	C	0.2361	***	550	94
由动力涡轮驱动/Driven by power turbine:					
动力输出, 后/ Power takeoff, rear (-C20B, J, W,)	C	0.1807	4608****	8000	100
动力输出, 后/ Power takeoff, rear (-C20R, R/2)	C	0.1807	4800****	8000	100
转速表/ Tachometer *(-C20 Series)	CC	0.1262	3516****	8000	100

C = 顺时针（面向驱动盘）/Clockwise viewing drive pad, CC = 逆时针/Counterclockwise

* 250-C300/A1取消了燃气涡轮和动力涡轮转速表附件驱动。

Both GP and power turbine tachometer accessory drives are omitted on the 250-C300/A1.

** 250-C20B, F, J, 225-C10 & -C10A 备用驱动盘可选；250-C20R, R/1, R/2, R/4, -C20W 或 -C300/A1 没有备用驱动盘。

Spare drive pad optional on 250-C20B, F, J, 225-C10 & -C10A. No spare drive pad on 250-C20R, R/1, R/2, R/4, -C20W or -C300/A1.

*** 最大发电机负荷为150安培（9.3马力）

The maximum generator load is 150 amperes (9.3 hp)

**** 从前后动力输出驱动提取的力矩总和不超过注7规定的值。上表给出的值代表30分钟限制最大合力矩。

The sum of the torque extracted in any combination from the front and rear power output drives shall not exceed the torque values specified in Note 7. The values given in the above table represent the 30 minute limited maximum total torque (Maximum Continuous for -C20S).

注5/NOTE 5:

外部引气不可超过压气机总流量的 4.5%。

External air bleed may not exceed 3% total compressor flow (for the 250-C10) and 4.5% (for all other models). 250-C300/A1 includes a restrictor that limits external air bleed offtake to 4.5%.

注6/NOTE 6:

在飞机上安装的发动机设备包括:

Engine equipment that is aircraft mounted includes:

1. 环境温度补偿器 (仅 250-C10) ;

The ambient temperature compensator (250-C10 only);

2. 两个注水喷嘴 (250-C20B, 250-C20J 可选) ;

Two water injection nozzles [250-C18B, 250-C18C, 250-C20B (optional), 250-C20F (optional), 250-C20J (optional), 250-C20S (optional) only];

3. 电子动力涡轮超速 (N2) 保护系统 (仅 250-C20R 和 -C20R/1) ;

The electronic power turbine overspeed (N2) protection system (250-C20R and -C20R/1 only).

注7/NOTE 7:

扭矩表测量的, 在低于标准进口空气温度和/或冲压条件下, 最大允许扭矩如下:

The maximum allowable torque as measured by the torquemeter for below standard inlet air temperature and/or ram conditions are as follows:

	最大扭矩 (磅-英寸) /Maximum torque (lb-in)					
	3 秒/ For 3 sec	10 秒/ For 10 sec	16 秒/ For 16 sec	起飞功率/ At takeoff power	30 分钟单发 失效功率/ At 30-min (OEI) power	最大连续/ At max continuous power
250-C20B, -C20J, -C20W	—	—	430	384	384	384
250-C20R/2,	—	—	490	400	400	400

注8/NOTE 8:

最大涡轮转子转速/Maximum turbine rotor speeds

	输出轴转速/Output shaft speed		燃气发生器转速/ Gas producer speed	
	最大瞬时(15 秒)/ Max transient (up to 15 sec)	最大持续/ Maximum sustained	最大瞬时(15 秒)/ Max transient (up to 15 sec)	最大持续/ Maximum sustained
250-C20B, -C20J, -C20R/2, -C20W 100%输出轴转速 = 6016rpm/ 100% output shaft speed = 6016 rpm 100%燃气发生器转速 = 50970rpm/ 100% gas producer speed = 50970 rpm	从慢车的 113%到起飞的 105%线性变化/ Varies linearly from 113% at idle to 105% at takeoff	从慢车的 108%到起飞的 103%线性变化/ Varies linearly from 108% at idle to 103% at takeoff	106%	105%

注9/NOTE 9:

紧急情况下使用标号 115/145 和更低的 MIL-G-5572 航空汽油，用量限定在在任何人修期间不超过 6 小时运行时间所必需的油量。除非是按体积混合 1/3 标号 80/87 的 MIL-G-5572 航空汽油，2/3 标号 JP-5 的 MIL-T-5624，或 ASTM D1655 Jet A、A-1 或 Rolls-Royce 规范 EMS-64 的航空涡轮燃油，没有时间限制。250-C300/A1 不允许使用任何应急燃料。

Emergency use of aviation gasoline MIL-G-5572, grade 115/145 and lower, is limited to the amount of fuel required to operate the engine for not over 6 hours during any overhaul period except that a mixture consisting of 1/3 by volume of aviation gasoline MIL-G-5572, grade 80/87, and 2/3 by volume of MIL-T-5624, grade JP-5, or aviation turbine fuels ASTM D1655 Jet A or A-1 or Rolls-Royce Corp. Spec. EMS-64 may be used for unrestricted periods of time. Use of emergency fuel of any kind is not allowed in the 250-C300/A1.

不可使用含有三磷甲苯酯添加剂的燃油。按体积混合 1/3 标号 100/130 的 MIL-G-5572 航空汽油（含铅量最多 2.0 毫升/加仑），2/3 标号 JP-5 的 MIL-T-5624，或 ASTM D1655 Jet A、A-1 或 Rolls-Royce 规范 EMS-64 的航空涡轮燃油的混合燃料，在任何人修期间可以使用不超过 300 小时。在加不同类型燃油时，没有必要清除系统中剩余的燃油。这些燃油类型的更换没有控制调整的要求。符合 MIL-I-27686 的防冰添加剂已经批准在燃油中使用，但不可超过总体积的 0.15%。壳牌（Shell）抗静电添加剂被批准使用，其浓度不能超过 300 皮欧姆/米的燃油传导性。

Fuels containing Tri-Cresyl-Phosphate additives shall not be used. A mixture consisting of 1/3 volume of aviation gasoline MIL-G-5572, grade 100/130, with a maximum of 2.0 ml./gal. lead content and 2/3 by volume of MIL-T-5624, grade JP-5, or aviation turbine fuels ASTM D1655 Jet A or A-1 or Rolls-Royce Corp. spec. EMS-64 may be used for not over 300 hours during any overhaul period. It is not necessary to purge the unused fuel from the system before refueling with different type fuels. No fuel control adjustment is required when switching these fuel types. Anti-icing additives conforming to MIL-I-27686 are approved for use in fuels in amounts not to exceed 0.15% by volume. Shell anti-static additive is approved for use at a concentration that will not exceed fuel conductivity of 300 pico-ohms per meter.

根据批准的数据，250-C18 系列、250-C20 系列、250-C20R 系列和 250-C300/A1 发动机已批准独联体规范的燃油和罗马尼亚燃油。250-C20 系列发动机批准使用满足中国标准 GB6537-94 RP-3 的燃油。

The 250-C18 Series, 250-C20 Series, 250-C20R Series and 250-C300/A1 engines are approved for use with C.I.S. Specification fuels and Romanian fuel in accordance with approved service data. The 250-C10, -18, -19, -20 series and -C300/A1 engines are approved for use with fuel meeting Chinese specification GB6537-94 RP-3.

注10/NOTE 10:

对于使用 Honeywell 的控制系统的发动机，发电机防火罩上必须安装一个发动机提供的气动蓄能器，以确保直升机转子系统与发动机控制系统的兼容性。对于件号为 P/N 23059597 的 250-C20R 发动机，要求提供和安装的气动蓄能器要使 Tridair 206L 系列转换（双）转子系统与 Honeywell 控制系统兼容。对于件号为 P/N 23053265 的 250-C20R/2 发动机，要求提供和安装的气动蓄能器要使 MDHC 500 系列直升机转子系统与 Honeywell 控制系统兼容。对于 250-C300/A1 发动机，要求安装的气动蓄能器要使 Robinson R66 直升机转子系统与 Honeywell 发动机控制系统兼容。

For engines with Honeywell control systems, an engine-supplied pneumatic accumulator(s) must be mounted on the engine fire shield to ensure compatibility of the helicopter rotor system with the engine control system. For the 250-C20R, P/N 23059597, the required pneumatic accumulators are supplied and installed for compatibility of the Tridair 206L series conversions (twin) rotor system with the Honeywell control system. For the 250-C20R/2, P/N 23053265, the required pneumatic accumulators are supplied and installed for compatibility of the MDHC 500 Series helicopter rotor system with the Honeywell control system. For the Model 250-C300/A1, the required pneumatic accumulators are installed for compatibility between the Robinson R66 helicopter rotor system and the Honeywell engine control system.

注11/NOTE 11:

250-C10B 用于 Hughes Tool 公司 369(OH-6A)型直升机。250-C10D 与 250-C10B 相似, 用于 Bell 直升机公司 206A-1(OH-58A)型直升机。

Model 250-C10B is adapted for use in the Hughes Tool Company Model 369 (OH-6A) Helicopter. Model 250-C10D is similar to the 250-C10B and is adapted for use in the Bell Helicopter Company Model 206A-1(OH-58A) helicopter.

250-C18 与 250-C10B 相似, 用于 Fairchild Hiller 1100 型直升机和 Bell 直升机公司 206A 和 206A-1 直升机。

Model 250-C18 is similar to the 250-C10B and is adapted for use in Fairchild Hiller Model 1100 Helicopter and Bell Helicopter Company Models 206A and 206A-1 Helicopters.

250-C18A 与 250-C18 相似, 用于 Hughes Tool 公司 369H 直升机。

Model 250-C18A is similar to the 250-C18 and is adapted for use in the Hughes Tool Company Model 369H Helicopter.

250-C18B 和 250-C18C 分别与 250-C18 和 250-C18A 相似, 增加了水—酒精注入装置。

Models 250-C18B and 250-C18C are similar to Models 250-C18 and 250-C18A respectively, with provisions added for water-alcohol injection.

250-C19 与 250-C18 相似, 除了直接向下排气。

Model 250-C19 is similar to Model 250-C18 except the exhaust is directed down.

250-C20 与 250-C18 相似, 除了增加了 1 级压气机和涡轮盘的直径。

Model 250-C20 is similar to Model 250-C18 except the first stage compressor and turbine wheels are larger in diameter.

250-C18B 和 250-C18C 分别能够替代 250-C18 和 250-C18A, 在干燥环境中使用。

Model 250-C18B and 250-C18C can be installed in lieu of Models 250-C18 and 250-C18A, respectively, and operated dry.

250-C20B 与 250-C20 相似, 提高了性能。水—酒精注入装置可选。

Model 250-C20B is similar to Model 250-C20 except for increased performance. Provisions for water-alcohol injection are optional with the Model 250-C20B.

250-C20C 与 C250-C20B 相似，但没经过水—酒精注入的审定，用于 Bell 直升机公司 OH-58C 直升机。

Model 250-C20C is similar to Model 250-C20B but has not been certificated for water-alcohol injection and is adapted for military uses in the Bell Helicopter Company OH-58C Helicopter.

250-C20F 与 C250-C20B 相似，除了齿轮箱壳体整合了前安装座，用于 Aerospatiale AS 355 直升机。

Model 250-C20F is similar to Model 250-C20B except the gearbox housing incorporates a front mounting pad and is adapted for use in the Aerospatiale AS 355 Helicopter.

250-C20J 与 C250-C20B 相似，除了将扭力计齿轮和动力提取齿轮的啮合频率由 5000Hz 变为 6000Hz，输出转速没有改变。

Model 250-C20J is similar to Model 250-C20B except the gear-meshing frequency between the torquemeter gear and the power takeoff gear is changed from 5000 Hertz to 6000 Hertz with no change in output speed.

250-C20S 与 C250-C20B 相似，用于向下排气的涡轮飞机，飞机安装了螺旋桨减速齿轮箱和螺旋桨动力涡轮调速器。发动机动力涡轮调速器与螺旋桨控制系统一起用作超转控制。齿轮箱是定向的，输出中心线在发动机中心线之上。齿轮箱壳体整合了前安装座。

Model 250-C20S is similar to the 250-C20B and is adapted for exhaust down turboprop application where the airframe installation provides the propeller reduction gearbox and propeller-power turbine governor. The engine power turbine governor acts as an overspeed governor along with the installation furnished propeller governing system. The gearbox is oriented so that the output centerline is above the engine centerline. The gearbox housing incorporates a front mounting pad.

250-C20R/1 与 C250-C20B 相似，除了提高了性能，采用了新压气机，增加了一个电子动力涡轮（N2）超转保护系统和 1 级涡轮盘内部能量吸收环。

Model 250-C20R/1 is similar to the 250-C20B except for increased performance, a new compressor, addition of an electronic power turbine (N2) overspeed protection system and an on-speed 1st stage turbine wheel internal energy absorbing ring.

250-C20R 与 250-C20R/1 相似，除了齿轮箱壳体整合了前安装座，用于 Aerospatiale AS 355 直升机。

Model 250-C20R is similar to the 250-C20R/1 except the gearbox housing incorporates a front mounting pad and is adopted for use in the Aerospatiale AS 355 Helicopter.

250-C20R/2 与 250-C20R/1 相似，不包括电子动力涡轮（N2）超转保护系统。

Model 250-C20R/2 is similar to the 250-C20R/1 except the electronic power turbine (N2) overspeed protection system is not included.

250-C20R/4 与 250-C20R/2 相似，除了将扭力计齿轮和动力提取齿轮的啮合频率由

5000Hz 变为 6000Hz，输出转速没有改变。

Model 250-C20R/4 is similar to the 250-C20R/2 except the gear meshing frequency between the torquemeter gear and the power takeoff gear is changed from 5000 Hz to 6000 Hz with no change in output speed.

250-C20W 与 250-C10A 相似，去掉了附件齿轮箱备用附件驱动座。250-C20W 的性能额定值与 250-C20F 相同。

Model 250-C20W is similar to the 225-C10A with the exception that the accessory gearbox spare accessory pad drive has been deleted. The 250-C20W performance rating is the same as the 250-C20F.

225-C10 与 250-C20B 相似，降低了 MGT 和功率，采用了 1 级涡轮盘内部能量吸收环。

Model 225-C10 is similar to the Model 250-C20B with reduced MGT and Power, and incorporates an on-speed #1 turbine wheel internal energy absorbing ring.

225-C10A 与 225-C10 相似，向下排气，齿轮箱中心线在发动机中心线之上。

Model 225-C10A is similar to the Model 225-C10 with the exhaust directed down. The gearbox output centerline is above the engine centerline.

250-C300/A1 与 250-C20B 相似，除了以下构型不同：新的离心压气机没有轴流增压级，转速传感器（无转速表），新的排气收集器，新转速表和主滑油压力传感器，发动机提供的起动—发电机/GCU 和发电机监控组件。

Model 250-C300/A1 is similar to the 250-C20B except for the following configuration differences: New centrifugal compressor with no axial compressor stages, speed sensors (no tachometers), new exhaust collector, new torquemeter and main oil pressure transducers, engine-supplied starter-generator/GCU and engine monitoring unit.

用于特定的飞机时，发动机会相应有些小改，给定发动机型号有可能有许多的改变（用不同件号区分）。

There may be a number of variants of a given engine Model (distinguished by different part numbers) which incorporate minor modifications to tailor the engine for particular airframe applications.

注12/NOTE 12:

所有按本型号合格证中生产的发动机配有单点火系统。1991 年 12 月 10 日的豁免 No. 219B 适用于 CAR13.211 的要求（对于 250-C300/A1 发动机是 14 CFR 33.69 条），允许本型号合格证数据单中所有单点火系统的发动机用于所有旋翼飞机，无论该旋翼机是按 CAR 的第 6 部或第 7 部取证，还是按 14 CFR 的 27 部或 29 部取证，也无论旋翼飞机被指定为 A 类还是 B 类。

All engines produced under this type certificate have single ignition systems. Exemption No. 219B applicable to requirements in CAR 13.211 (as well as 14 CFR Part 33.69 requirements for the 250-C300/A1), dated December 10, 1991, permits the type certification of all engines on this type certificate data sheet with single ignition for use in all rotorcraft, regardless of whether the rotorcraft is certificated under Part 6 or Part 7 of the CAR, or 14 CFR Part 27 or Part 29, and

regardless of whether the rotorcraft is designated as Category A or Category B.

注13/NOTE 13:

在装到经审定的航空器之前,任何曾在军方服役的 250 发动机必须进行评估,以确保其符合 FAA 批准的型号设计,是在经批准的生产系统控制之下制造的,符合经审定航空器的安装要求,以及处于安全运行条件。另外,必须完成以下特定更改:

Prior to installation in certificated aircraft, any model 250 engine that has been in military service must be evaluated to ensure that it conforms to the FAA Approved Type Design, was manufactured under an approved production system, is eligible for installation on a U.S. type certificated aircraft, and is in condition for safe operation. Additionally, the following specific changes must be incorporated:

- a. 曾在军方服役的 250-C10B 发动机必须安装 Rolls-Royce 公司件号为 P/N 6844703-047137, 6851549 或其他等效的燃油管,代替件号为 P/N 6844703-43137 的非阻燃管。

Model 250-C10B engines that have been in military service must have Rolls-Royce P/N 6844703-047137, 6851549 or other approved equivalent fuel line installed in place of non-fire resistant line, Rolls-Royce P/N 6844703-43137.

- b. 曾在军方服役的 250-C10B 和 250-C10D 发动机必须按 Honeywell 服务通告 GT-44 检查和调整 DP-D3 型燃气涡轮燃油控制组件。

Model 250-C10B and 250-C10D engines that have been in military service must have the Honeywell Model DP-D3 gas turbine fuel control checked and adjusted in accordance with Honeywell Service Bulletin GT-44.

注14/NOTE 14:

水—酒精注入系统的使用限于环境温度 40°F 以上。增强的起飞额定值基于水—酒精以 1.25gpm 的流量送到喷嘴,每个喷嘴的压差 50psi。水—酒精溶液、喷嘴位置和系统安装必须符合 FAA 批准的安装设计手册要求。

Operation with water-alcohol injection is limited to ambient temperatures above 40° F. The augmented takeoff rating is based on a water-alcohol flow rate of 1.25 gpm delivered to the injection nozzles at a pressure differential of 50 psi across each nozzle. The water-alcohol solution, nozzle location and system installation must be in accordance with the FAA approved Installation Design Manual requirements.

注15/NOTE 15:

可选的自动再点火控制组件仅批准用于 Simmonds Precision (GLA)公司件号为 P/N 43754 或 49522 或 Honeywell 公司 P/N 10-387150-1 的点火激励器。已经废止但有可能仍然在服役的 P/N 6877740 组件,适合于 Bell 206A-1 型直升机。P/N 6877138 组件用于 Bell 206A 型直升机。P/N 23050521 组件与 250-C20、250-C20B 和 250-C20J 发动机一起用于 Bell 206B 型直升机或者 Bell 206B Jet Ranger III 直升机。P/N 23050522 组件与 250-C20B 和 250-C20J 发动机一起用于 Bell 206L 型直升机。P/N 23052372 组件与 250-C20R/2 和 250-C20R/4 发动机一起用于 Bell 206B Jet Ranger III 型直升机。P/N 23052373 组件与 250-C20R/2 发动机一起用于 Bell 206L 型直升机。

The optional Auto Reignition Control Kits are approved for use only with the Simmonds Precision (GLA) P/N 43754 or 49522 or Honeywell P/N 10-387150-1 ignition exciters. The P/N 6877740 Kit, which has been discontinued but may still be in service, is adapted for use on the Bell Model 206A-1 helicopter. The P/N 6877138 Kit is adapted for use on the Bell Model 206A helicopter. The P/N 23050521 Kit is adapted for use with engine Models 250-C20, 250-C20B and 250-C20J on the Bell Model 206B helicopter or the Model 206B Jet Ranger III helicopter. The P/N 23050522 Kit is adapted for use with engine Models 250-C20B and 250-C20J on the Bell Model 206L helicopter. The P/N 23052372 Kit is adapted for use with engine Models 250-C20R/2 and 250-C20R/4 on the Bell Model 206B Jet Ranger III helicopter. The P/N 23052373 Kit is adapted for use with engine Model 250-C20R/2 on the Bell Model 206L helicopter

注16/NOTE 16:

关键旋转件的寿命限制在 Rolls-Royce 公司相应的操作维护手册中公布。发行信函 (DIL)190 和 202 分别确定了延时修理的发动机中第 1 级和第 2 级涡轮盘能够返回使用的可接受裂纹限制。大修发动机中这些裂纹是不可接受的。

Life limits established for critical rotating components are published in the corresponding Rolls-Royce Corp. Operation and Maintenance Manual. Distributor Information Letters (DIL) 190 and 202 establish acceptable crack limits suitable for return to service of first stage and second stage turbine wheels, respectively, in time continued (repair) engines. Cracks in these wheels are not allowed in overhauled engines.

注17/NOTE 17:

对于 250-C20、225-C10 系列和 250-C300/A1 发动机, 磁性滑油排放塞 (金属销探测器) 指示器灯是一个安装要求。

A magnetic oil drain plug (chip detector) indicator lamp is an installation requirement for 250-C20 series engines, 225-C10 series engines and 250-C300/A1.

注18/NOTE 18:

除 250-C20R, -C20R/1, -C20R/2 和 -C20R/4 以外, 按本型号合格证生产的发动机均已按照 FAA AC33-1B 的 I 类和 II 类外物吸入标准进行了试验, 批准无进口保护运行。250-C20R, -C20R/1, -C20R/2 和 -C20R/4 型发动机按照 14 CFR 33 部第 10 修正案 33.77 条外物吸入标准进行了试验, 批准无进口保护运行, 除了在起动防冰系统时用 AC20-73 中 60 秒延迟的标准代替 2 分钟以外。

Engines produced under this type certificate, except the 250-C20R, -C20R/1, -C20R/2 and -C20R/4 are approved for operation with unprotected inlets having been tested in accordance with Group I and Group II Foreign Object Ingestion Criteria of FAA Advisory Circular AC 33-1B. The 250-C20R, -C20R/1, -C20R/2 and -C20R/4 are approved for operation with unprotected inlets having been tested in accordance with Foreign Object Ingestion Criteria of 14 CFR Part 33-10, Section 33.77 with the exception that Advisory Circular 20-73 criteria of 60-second delay, instead of 2-minutes, was used in actuating the anti-icing system.

注19/NOTE 19:

250-C20R, -C20R/1, -C20R/2, -C20R/4, -C20S, -C20W 和 225-C10, -C10A 发动机要求安装 3—25 微米的外部回油滤。

A 3 to 25 micron absolute external scavenge oil filter is an installation requirement for the Model 250-C20R, -C20R/1, -C20R/2, -C20R/4, -C20S, -C20W, 225-C10 and -C10A engines.

注20/NOTE 20:

250-C20B、-C20F、-C20J 和-C20S 发动机可选装 1 级涡轮盘内部能量吸收环作为技术更新。

An optional on-speed #1 turbine wheel internal energy absorbing ring is available for retrofit on 250-C20B, -C20F, -C20J and -C20S model engines.

注21/NOTE 21:

大多数交付美国军方的 250 系列发动机可由相应于民用型号命名的军用型号命名的数据标牌识别。这些发动机虽然交付给了美国军方，但具有 14 CFR 或者 CAR 的设计批准，包括在适当的型号合格证中。尽管如此，本数据单注 13 所列的项目在这些发动机装于民机之前必须提出。

Most 250 series engines delivered to the U.S. military have been identified on the data plate with the corresponding civil model designation in addition to the military model designation. Such engines, even though delivered to the U.S. military, have either 14 CFR or CAR design approval and are included under the applicable type certificate. Nonetheless, the items listed in NOTE 13 of this TCDS must be addressed before these engines could be considered for installation in civil aircraft.

注22/NOTE 22:

每个发动机型号包括的标准设备（如适用），如控制系统、燃油泵和油滤、点火系统、压气机引气活门、电子传感器、起动机/发电机等等，都在经批准的零件清单中详细说明。在本数据单第 40 修订版之前，包括了一些这样的信息，40 修订版去掉了这些，以避免与零件清单重复和数据单的频繁修订。

Standard equipment included with each engine model (if applicable), such as the control system, fuel pump & filter, ignition system, compressor bleed valve, electronic sensors, starter/generator, etc., are defined in the approved Parts List. Prior to Revision 40 of this TCDS, some of this information was included in the TCDS. Revision 40 removed these references to avoid duplication with the Parts List and frequent revisions to the TCDS.

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