



**TYPE CERTIFICATE DATA SHEET Nº EM-2011T05**

Type Certificate Holder:

**ROLLS-ROYCE CORPORATION**  
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USA

EM-2011T05-00 Sheet 01  ROLLS-ROYCE 250-C300/A1  23 May 2011
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Engines of models described herein conforming with this data sheet, which is part of Type Certificate No. 2011T05, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Brazilian Aeronautical Regulations provided they are installed, operated, and maintained as prescribed by the approved manufacturer's manuals and other instructions.

<b>I - MODEL</b>	250-C300/A1	
<b>TYPE</b>	Free turbine turbo-shaft with single stage centrifugal flow compressor, two-stage gas generator turbine, two-stage power turbine and single combustion chamber.	
<b>RATINGS</b> (see Note 1)	250-C300/A1	
	Maximum Continuous:	
	SHP at sea level	240
	Gas generator, rpm	50 097
	Output shaft, rpm	6 016
	Measured gas temp, °C (°F)	641 (1 185)

<b>RATINGS (Cont.)</b>		250-C300/A1
	Takeoff (5 minutes):	
	SHP at sea level	300
	Gas generator, rpm	51 869
	Output shaft, rpm	6 016
	Measured gas temp, °C (°F)	692 (1 277)
	30 minute OEI:	
	SHP at sea level	#
	Gas generator, rpm	#
	Output shaft, rpm	#
	Measured gas temp, °C (°F)	#
	Output shaft	Internal Spline
<b>SHAFT RATIO</b>		5.53:1
<b>FUEL TYPE</b>		See Note 9
<b>OIL, LUBRICATION</b>		See Note 10
<b>TEMPERATURE LIMITS</b>		See Note 2
<b>PRESSURE LIMITS</b>		See Note 3
<b>PRINCIPAL DIMENSIONS</b>	Refer to specific IDM for dimensions and center of gravity locations (see Note 15).	
<b>CENTER OF GRAVITY</b>	Refer to specific IDM for dimensions and center of gravity locations (see Note 15).	
<b>WEIGHT (DRY)</b>	Weight of basic engines includes starter/generator, GCU and EMU, lb.	201

**IMPORT REQUIREMENTS** Each engine imported separately and/or spare parts must be accompanied by an Airworthiness Certificate for Export and/or an Airworthiness Approval Tag, respectively, issued by FAA (or a third country authority, in case of used engine imported from such country) attesting that the particular engine and/or parts were submitted to the governmental quality control before delivery and are in conformity with the ANAC approved type design. The ANAC type design corresponds to the FAA approved type design, as stated in ANAC Report V33-1051-00 dated 23 May 2011 or further revisions.

<b>CERTIFICATION BASIS</b>	RBAC 33, which endorses 14CFR Part 33, effective February 1, 1965, as amended by 33-1 through 33-4; plus Amendment 9 Section 33.4 (Instructions for Continued Airworthiness), and Exemption No. 219B from Part 33.69.	<u>Model</u>	<u>Application</u>	<u>Issued TC</u>
	RBAC 34, which endorses 14CFR Part 34, effective September 10, 1990, as amended by 34-1 through 34-3.	250-C300/A1	07 Jan. 2011	23 May 2011

**PRODUCTION BASIS** FAA Production Certificate No. 310.

**NOTES**

**NOTE 1** The engine ratings, unless otherwise specified, are based on static sea level standard conditions. Compressor inlet air (dry) 15°C (59°F), 29.92 in Hg. Compressor inlet belt 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.

<b>NOTE 2</b>	Maximum Permissible Temperatures, °C (°F)	250-C300/A1
	- Measured gas temperature	
	- Takeoff and 30-min (OEI) power	782 (1 439)
	- Maximum continuous	706 (1 303)
	- Maximum Transient (6 seconds maximum)	782 (1 439) to 843 (1 550)
	- Starting (10 seconds maximum)	782 (1 439) to 927 (1 700)
	- Oil inlet temperature	
	- MIL-L-23699 or AS 5780 HPC	-40 (-40) to 107 (225)

**NOTE 3** Fuel inlet and Oil Pressure Limits

- Fuel Pressure Limits (\*):
  - Minimum fuel inlet pressure:
    - Sea level: ambient minus 9.0 in. Hg
    - 6 000 ft: ambient minus 5.5 in. Hg
    - 10 000 ft: ambient minus 3.3 in. Hg
    - 15 000 ft: ambient minus 0.8 in. Hg
    - 20 000 ft: ambient plus 1.5 in. Hg
    - 25 000 ft: ambient plus 3.0 in. Hg
  - Maximum fuel inlet pressure: 25 psig

(\* ) applicable to MIL-T-5624 and ASTM D1655 Jet A or A-1 fuels. No fuel inlet depression permitted with MIL-G-5572 fuel.

## - Oil Pressure Limits:

- Operating oil gauge pressure, psig
  - 94.2% (48 014 rpm) gas generator turbine speed and above: 115 ~ 130
  - 78.5% (40 011 rpm) gas generator turbine speed to 94.2% (48 014 rpm): 90 ~ 130
  - Below 78.5% (40 011 rpm) gas generator turbine speed: 50 ~ 130
- Minimum oil pump inlet pressure: 5.0 in. Hg absolute

**NOTE 4** Maximum Turbine Rotor Speed (rpm) (\*) 250-C300/A1

- Gas generator speed
  - maximum transient (up to 15 sec.) 54 028
  - maximum sustained 53 518
- Output shaft speed
  - maximum transient (up to 15 sec.) 6 618
  - maximum sustained 6 317

(\* ) For 250-C300/A1: 100% gas generator speed = 50 970 rpm  
100% output shaft speed = 6 016 rpm

**NOTE 5** The maximum allowable torque as measured by the torquemeter for below standard inlet air temperature and/or ram conditions are as follows:

- Maximum Torque, lb-ft	250-C300/A1
- For 16 seconds:	430
- At takeoff power:	288
- At maximum continuous power:	244

**NOTE 5** For the 250-C300/A1 engine model, external air bleed may not exceed 4.5% total compressor flow. The engine includes a restrictor that limits external air bleed to 4.5%.

**NOTE 6** The following accessory drive provisions are incorporated:

	Direction of Rotation	Speed Ratio to Turbine	Torque (lb.-in)		Overhang (lb.-in)
			Continuous	Static	
- Driven gas generator turbine Starter generator	CW	0.2361	(*)	550	94
- Driven by power turbine Power takeoff, rear	CW	0.1807	4 608 (**)	8 000	100

Legend:

CW = clockwise

(\*) The maximum generator pad load is 9.3 hp, from idle to takeoff.

(\*\*) 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 5.

**NOTE 7** For engines with Honeywell control system, 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-C300/A1 engine model, the required pneumatic accumulators are installed for compatibility between the Robinson R66 helicopter rotor system and the Honeywell engine control system.

**NOTE 8** A magnetic oil drain plug (chip detector) indicator lamp is an installation requirement for the 250-C300/A1 engine model

- NOTE 9** Approved emergency fuels are provided in the Operation and Maintenance Manual (see Note 15). Emergency use of aviation gasoline is not permitted for the 250-C300/A1 engine model, as well as fuels containing Tri-Cresyl-Phosphate additives. The approved anti-icing additives are provided in the Operation and Maintenance Manual. It is not necessary to purge the unused fuel from the system before refueling with different type fuels.
- NOTE 10** Approved brands of oil are provided in the Operation and Maintenance Manual (see Note 15).
- NOTE 11** Engine equipment that is aircraft mounted includes oil temperature sensor, generator control unit and engine monitoring unit. Standard equipment included with engine model (if applicable), such as the control system, fuel pump and filter, ignition system, compressor bleed valve, electronic sensors, starter/generator etc., are defined in the approved Parts List (see Note 15).
- NOTE 12** Certain critical rotating components are life-limited. Life limits are published in the correspondent Operation and Maintenance Manual. Limits for return to service are published in the correspondent Overhaul Manual (see Note 15).
- NOTE 13** The engines meet the smoke and gaseous emission requirements of RBAC 34, which endorses 14 CFR Part 34.
- NOTE 14** 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 position.
- NOTE 15** The following engine documents are approved for 250-C300/A1 engine model:
- Operation and Maintenance Manual OMM), p/n CSP21009
  - Installation Drawing Manual (IDM), p/n CSP24013
  - Parts List, p/n 10011
- NOTE 16** Overhaul of the 250-C300/A1 engine and components is only authorized via approved Manuals or TC holder approved procedures.



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