

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION TYPE CERTIFICATE DATA SHEET E00076EN	TCDS NUMBER E00076EN DATE: November 4, 2016 Revision 8 ROLLS-ROYCE plc MODELS: Trent 1000-A Trent 1000-A2 Trent 1000-J2 Trent 1000-C Trent 1000-C2 Trent 1000-K2 Trent 1000-D Trent 1000-D2 Trent 1000-L2 Trent 1000-E Trent 1000-E2 Trent 1000-G Trent 1000-G2 Trent 1000-H Trent 1000-H2
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Engines of models described herein conforming with this data sheet (which is part of Type Certificate Number E00076EN) and other approved data on file with the Federal Aviation Administration, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Federal Aviation Regulations, provided they are installed, operated, and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

TYPE CERTIFICATE (TC) HOLDER: Rolls-Royce plc
 PO Box 31
 Derby, DE24 8BJ
 United Kingdom

I. MODELS	Trent 1000-A Trent 1000-A2	Trent 1000-C Trent 1000-C2	Trent 1000-D Trent 1000-D2	Trent 1000-E Trent 1000-E2	Trent 1000-G Trent 1000-G2								
TYPE	<p>The 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 fan diameter is 112 inches with a swept fan blade and outlet guide vanes. The combustion system consists of a single annular combustor with 18 fuel spray nozzles. The LP and IP assemblies rotate independently in a counter clockwise direction; the HP assembly rotates clockwise, when viewed from back of the engine looking forward. The compressor and turbine have the following features:</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;"><u>Compressor</u></td> <td style="text-align: center;"><u>Turbine</u></td> </tr> <tr> <td style="text-align: center;">LP - single stage</td> <td style="text-align: center;">LP - 6 stage</td> </tr> <tr> <td style="text-align: center;">IP - 8 stage</td> <td style="text-align: center;">IP - single stage</td> </tr> <tr> <td style="text-align: center;">HP - 6 stage</td> <td style="text-align: center;">HP - single stage</td> </tr> </table> <p>The engine control system utilizes an electronic engine controller (EEC) which has an airframe interface for digital bus communications. An engine monitoring unit (EMU) is fitted to provide vibration signals to the aircraft.</p>					<u>Compressor</u>	<u>Turbine</u>	LP - single stage	LP - 6 stage	IP - 8 stage	IP - single stage	HP - 6 stage	HP - single stage
<u>Compressor</u>	<u>Turbine</u>												
LP - single stage	LP - 6 stage												
IP - 8 stage	IP - single stage												
HP - 6 stage	HP - single stage												
RATINGS (See NOTE 1)													
Takeoff (5 min) Thrust, (net) - lbf (See NOTE 5)	69,194	74,511	--	59631	72,066								
Maximum continuous Thrust, (net) - lbf	64,722	69,523	--	58,866	64,722								
Equivalent bare engine Takeoff thrust – lbf	69,885	75,239	--	60,253	72,777								
Equivalent bare engine Maximum continuous – lbf	65,382	70,217	--	59,481	65,382								

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LEGEND: "--" INDICATES "SAME AS PRECEDING MODEL"
 "---" INDICATES "NOT APPLICABLE"

I. MODELS (continued)	Trent 1000-A Trent 1000-A2		Trent 1000-C Trent 1000-C2	Trent 1000-D Trent 1000-D2	Trent 1000-E Trent 1000-E2	Trent 1000-G Trent 1000-G2
PRINCIPAL DIMENSIONS, inches Length - tip of spinner to rear of cold nozzle Radius – from centerline not including drain mast	187.8 74.8		-- --	-- --	-- --	-- --
CENTER OF GRAVITY, Wet, inches (See NOTE 17) Trent 1000-A, -C, -D, -E, -G, and -H Offset from the center of front engine mount (power plant station 3000mm). Offset from Horizontal Centerline Offset from Vertical Centerline Trent 1000-A2, -C2, -D2, -E2, -G2, -H2, -J2, -K2, and -L2 Offset from the center of front engine mount. Offset from Horizontal Centerline Offset from Vertical Centerline	Without Service Bulletin 72-G319 or Modification 72-G319 31.0 0.7 -3.3 31.6 0.7 -3.1	With Service Bulletin 72-G319 or Modification 72-G319 31.7 0.6 -3.4 31.6 0.7 -3.1	-- -- -- -- -- -- --	-- -- -- -- -- -- --	-- -- -- -- -- -- --	-- -- -- -- -- -- --
WEIGHT Dry with nacelle engine build-up items (lbs) (See NOTE 17)	Without Service Bulletin 72-G319 or Modification 72-G319 Trent 1000-A 13,087	With Service Bulletin 72-G319 or Modification 72-G319 Trent 1000-A 13,300 Trent 1000-A2 13,110	Trent 1000-C -- Trent 1000-C2 --	Trent 1000-D -- Trent 1000-D2 --	Trent 1000-E -- Trent 1000-E2 --	Trent 1000-G -- Trent 1000-G2 --
ENGINE BUILD STANDARD RR Drawing Introduction Sheet (DIS)	Trent 1000-A 2286 Issue3 Trent 1000-A2 2327 Issue 3	Trent 1000-C 2287 Issue3 Trent 1000-C2 2328 Issue 3	Trent 1000-D 2288 Issue3 Trent 1000-D2 2329 Issue 3	Trent 1000-E 2289 Issue3 Trent 1000-E2 2330 Issue 3	Trent 1000-G 2291 Issue3 Trent 1000-G2 2331 Issue 3	

I. MODELS (continued)	Trent 1000-H Trent 1000-H2		Trent 1000-J2	Trent 1000-K2	Trent 1000-L2
RATINGS (See NOTE 1) Takeoff (5 min) Thrust, (net) - lbf (See NOTE 5) Maximum continuous Thrust, (net) - lbf Equivalent bare engine Takeoff thrust – lbf Equivalent bare engine Maximum continuous – lbf	63,897 58,866 64,551 59,481		78,129 71,818 78,886 72,519	-- -- -- --	74,511 69,523 75,239 70,217
PRINCIPAL DIMENSIONS, inches Length - tip of spinner to rear of cold nozzle Radius – from centerline not including drain mast	187.8 74.8		-- --	-- --	-- --
CENTER OF GRAVITY, Wet, inches (See NOTE 17) Trent 1000-A, -C, -D, -E, -G, and -H Offset from the center of front engine mount (power plant station 3000mm). Offset from Horizontal Centerline Offset from Vertical Centerline Trent 1000-A2, -C2, -D2, -E2, -G2, -H2, -J2, -K2, and -L2 Offset from the center of front engine mount. Offset from Horizontal Centerline Offset from Vertical Centerline	Without Service Bulletin 72-G319 or Modification 72-G319 31.0 0.7 -3.3	With Service Bulletin 72-G319 or Modification 72-G319 31.7 0.6 -3.4 31.6 0.7 -3.1	--- --- --- -- -- --	--- --- --- -- -- --	--- --- --- -- -- --
WEIGHT Dry with nacelle engine build-up items (lbs) (See NOTE 17)	Without Service Bulletin 72-G319 or Modification 72-G319 Trent 1000-H 13,087	With Service Bulletin 72-G319 or Modification 72-G319 Trent 1000-H 13,300 Trent 1000-H2 13,110	-- --	-- --	-- --

I. MODELS (continued)	Trent 1000-H Trent 1000-H2	Trent 1000-J2	Trent 1000-K2	Trent 1000-L2
ENGINE BUILD STANDARD RR Drawing Introduction Sheet (DIS)	Trent 1000-H 2292 Issue3 Trent 1000-H2 2332 Issue 3	2333 Issue 3	2334 Issue 3	2335 Issue 3

APPROVED FUELS	See Engine Operating Instructions for approved fuels and additives.
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APPROVED OILS	See Engine Operating Instructions for approved oils.
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OIL CONSUMPTION	Maximum 0.63 U.S. Quarts per hour.
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EQUIPMENT	For details of equipment included in the type design definition refer to the Installation manual. For details of equipment supplied by the Airframe TC holder, refer to the installation manual. A thrust reverser unit is not part of the engine type design and is certified as part of the aircraft type design. The engine is approved for operation with a thrust reverser unit.
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CERTIFICATION BASIS	<p>Trent 1000-A, -C, -D, -E, -G, and -H</p> <p><u>Airworthiness Standards:</u> 14 CFR part 33 effective February 1, 1965, as amended by 33-1 through 33-21.</p> <p><u>Emissions Standards:</u> 14 CFR part 34, Amendment 5A, effective October 23, 2013. In addition, the engine meets ICAO environmental standards defined in Annex 16, amendment 7, dated November 17, 2011. See NOTE 18 for a detailed summary of the certification basis for fuel venting and exhaust emissions.</p> <p>Trent 1000-A2, -C2, -D2, -E2, -G2, -H2, -J2, -K2, and -L2</p> <p><u>Airworthiness Standards:</u> 14 CFR part 33, effective February 1, 1965, as amendmended by 33-1 through 33-21 and amendment 31 § 33.27. With an Exemption to § 33.27(b)(3), No. 10964 dated March 28, 2014 for the Trent 1000-A2, -C2, -D2, -G2, -J2, -K2, and -L2 engine models.</p> <p><u>Emissions Standards:</u> 14 CFR part 34, Amendment 5A, effective October 23, 2013. In addition, the engine meets ICAO environmental standards defined in Annex 16, amendment 7, dated November 17, 2011. See NOTE 18 for a detailed summary of the certification basis for fuel venting and exhaust emissions.</p> <p>Pursuant to 14 CFR § 21.29(a)(1)(ii), the Type Certificate was issued in validation of the European Aviation Safety Agency (EASA) Certification Standards CS-E, original issue dated October 24, 2003, and CS-E 1040 amendment 3, which were found to provide a level of safety equivalent to that provided by 14 CFR Part 33 effective February 1, 1965, as amended by 33-1 through 33-21.</p> <table border="1"> <thead> <tr> <th><u>MODEL</u></th> <th><u>APPLICATION DATE</u></th> <th><u>ISSUED/REVISED</u></th> <th><u>DELETED</u></th> </tr> </thead> <tbody> <tr> <td>Trent 1000-A</td> <td>December 10, 2004</td> <td>August 7, 2007</td> <td></td> </tr> <tr> <td>Trent 1000-C</td> <td>December 10, 2004</td> <td>August 7, 2007</td> <td></td> </tr> <tr> <td>Trent 1000-D</td> <td>December 10, 2004</td> <td>August 7, 2007</td> <td></td> </tr> <tr> <td>Trent 1000-E</td> <td>December 10, 2004</td> <td>August 7, 2007</td> <td></td> </tr> <tr> <td>Trent 1000-G</td> <td>December 10, 2004</td> <td>August 7, 2007</td> <td></td> </tr> <tr> <td>Trent 1000-H</td> <td>December 10, 2004</td> <td>August 7, 2007</td> <td></td> </tr> <tr> <td>Trent 1000-A2</td> <td>June 11, 2012</td> <td>May 9, 2014</td> <td></td> </tr> <tr> <td>Trent 1000-C2</td> <td>June 11, 2012</td> <td>May 9, 2014</td> <td></td> </tr> </tbody> </table>	<u>MODEL</u>	<u>APPLICATION DATE</u>	<u>ISSUED/REVISED</u>	<u>DELETED</u>	Trent 1000-A	December 10, 2004	August 7, 2007		Trent 1000-C	December 10, 2004	August 7, 2007		Trent 1000-D	December 10, 2004	August 7, 2007		Trent 1000-E	December 10, 2004	August 7, 2007		Trent 1000-G	December 10, 2004	August 7, 2007		Trent 1000-H	December 10, 2004	August 7, 2007		Trent 1000-A2	June 11, 2012	May 9, 2014		Trent 1000-C2	June 11, 2012	May 9, 2014	
<u>MODEL</u>	<u>APPLICATION DATE</u>	<u>ISSUED/REVISED</u>	<u>DELETED</u>																																		
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Trent 1000-C2	June 11, 2012	May 9, 2014																																			

CERTIFICATION BASIS (continued)	<u>MODEL</u>	<u>APPLICATION DATE</u>	<u>ISSUED/REVISED</u>	<u>DELETED</u>
		Trent 1000-D2	June 11, 2012	May 9, 2014
	Trent 1000-E2	June 11, 2012	May 9, 2014	
	Trent 1000-G2	June 11, 2012	May 9, 2014	
	Trent 1000-H2	June 11, 2012	May 9, 2014	
	Trent 1000-J2	June 11, 2012	May 9, 2014	
	Trent 1000-K2	June 11, 2012	May 9, 2014	
	Trent 1000-L2	June 11, 2012	May 9, 2014	

IMPORT REQUIREMENTS	<p>To be considered eligible for installation on U.S. registered aircraft, each new engine to be exported to the United States with UK CAA or EASA airworthiness approval shall have a Joint Aviation Authorities (JAA) or EASA Form 1, Authorized Release Certificate. The JAA or EASA Form 1 should state that the engine conforms to the type design approved under the U.S. Type Certificate E00076EN, is in a condition for safe operation and has undergone a final operational check.</p> <p>Additional guidance is contained in FAA Advisory Circular 21-23, "Airworthiness Certification of Civil Aircraft, Engines, Propellers, and Related Products Imported into the United States."</p>
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NOTES

NOTE 1. The engine ratings are based on sea-level static, International Standard Atmosphere (ISA) conditions. The Equivalent Bare Engine Take-off Thrust quoted is derived from the approved Net Take-off Thrust by excluding the losses attributable to the inlet, cold nozzle, hot nozzle, by-pass duct flow leakage and the afterbody. No power take-offs are assumed. All models are flat rated to ISA + 15°C except the Trent 1000-D and Trent -D2, which are flat rated to ISA +20°C, the Trent 1000-K2, which is flat rated to ISA+18°C, and the Trent 1000-L2, which is flat rated to ISA +24°C.

NOTE 2. MAXIMUM PERMISSIBLE ENGINE ROTOR SPEEDS (%)
 (See NOTE 17) 100% HP = 13,391 rpm; 100% IP = 8,937 rpm; 100% LP = 2,683 rpm

When maintenance running is performed above idle thrust with the aircraft static, the control system automatically applies a temperature dependent LP speed limit (Keep Out Zone). Refer to the Aircraft Maintenance Manual for details.

The Maximum Continuous speeds are not displayed as limitations on the aircraft flight deck.

Trent 1000-A, Trent 1000-C, Trent 1000-D, Trent 1000-E, Trent 1000-G, and Trent 1000-H

Without Service Bulletin 72-G319 or Modification 72-G319 Incorporated		With Service Bulletin 72-G319 or Modification 72-G319 Incorporated	
Takeoff (5 minutes, see NOTE 5)		Takeoff (5 minutes, see NOTE 5)	
HP	98.6%	HP	100.2%
IP	100.8%	IP	103.5%
LP	101.4%	LP	101.5%
Maximum Continuous			
HP	97.8%	HP	99.2%
IP	99.5%	IP	100.8%
LP	101.4%	LP	101.5%

For engines without SB 72-G319 or Modification 72-G319, LP speed must not exceed 96.5% during any aircraft operation with an apparent tailwind, i.e., tailwind greater than aircraft forward speed. This limitation does not apply to an engine with SB 72-G319 or Modification 72-G319.

NOTE 2.
(continued)**MAXIMUM PERMISSIBLE ENGINE ROTOR SPEEDS (%)**

100% HP = 13,391 rpm; 100% IP = 8,937 rpm; 100% LP = 2,683 rpm

Trent 1000-A2, Trent 1000-C2, Trent 1000-D2, Trent 1000-E2, Trent 1000-G2, Trent 1000-H2, Trent 1000-J2, Trent 1000-K2, and Trent 1000-L2

Takeoff (5 minutes, see NOTE 5)

HP	101.0%
IP	103.5%
LP	101.5%

Maximum Continuous

HP	99.5%
IP	100.8%
LP	101.5%

NOTE 3.
(See NOTE 17)**TEMPERATURE LIMITS****TURBINE GAS TEMPERATURE (TGT) – trimmed/indicated °C**Measured at the 1st stage Nozzle Guide Vane of the LP Turbine.

Maximum Ground Starting and Shutdown	700
Maximum Inflight Relights	900
Maximum Takeoff (5 min., see NOTE 5.)	900
Maximum Continuous (unrestricted duration)	850
Maximum Exhaust Gas Overtemperature (see NOTE 11)	920

FUEL °C

Measured at the inlet to the engine.

Minimum Fuel Temperature	-45
Maximum Fuel Temperature	65

OIL °C

Combined oil scavenge temperature

Trent 1000-A, Trent 1000-C, Trent 1000-D, Trent 1000-E, Trent 1000-G, and Trent 1000-HWithout Service Bulletin 72-G319 or
Modification 72-G319 Incorporated

Minimum for starting:	-40
Minimum for acceleration to power, for fuel inlet temperature -23°C and higher:	40
Minimum for acceleration to power, for fuel inlet temperature from -45°C to -23°C: Varies linearly from 40 to 77	
Maximum for unrestricted use:	196
Transient limit (15 minutes):	205

With Service Bulletin 72-G319 or
Modification 72-G319 Incorporated

Minimum for starting:	-40
Minimum for acceleration to power, for fuel inlet temperature -23°C and higher:	40
Minimum for acceleration to power, for fuel inlet temperature from -45°C to -23°C: Varies linearly from 40 to 77	
Maximum for unrestricted use:	193
Transient limit (15 minutes):	201

Trent 1000-A2, Trent 1000-C2, Trent 1000-D2, Trent 1000-E2, Trent 1000-G2, Trent 1000-H2, Trent 1000-J2, Trent 1000-K2, and Trent 1000-L2

Minimum for starting:	-40
Minimum for acceleration to power, for fuel inlet temperature -23°C and higher:	40
Minimum for acceleration to power, for fuel inlet temperature from -45°C to -23°C:	Varies linearly from 40 to 77
Maximum for unrestricted use:	193
Transient limit (15 minutes):	201

NOTE 4.
(See NOTE 17)**PRESSURE LIMITS****FUEL**

Minimum absolute pressure at engine inlet:	5 psi + Vapor Pressure
Transient conditions with engine running (2 seconds):	2 psi + Vapor Pressure

For engine operation with the aircraft boost pumps inoperative the engine minimum fuel pressure limit is reduced down to 3.4 psi at altitudes of up to 35000 feet for up to 600 minutes. Refer to the Installation Manual for additional information.

Maximum absolute pressure at the pylon interface:	
Steady state conditions with engine running:	70 psi
Transient conditions with engine running (2 seconds)	140 psi
Static after engine shutdown	170 psi

OILTrent 1000-A, Trent 1000-C, Trent 1000-D, Trent 1000-E, Trent 1000-G, and Trent 1000-H

Without Service Bulletin 72-G319 or Modification 72-G319 Incorporated	With Service Bulletin 72-G319 or Modification 72-G319 Incorporated
Minimum Ground idle to 74% IP rpm: 30 psi	Minimum Ground idle to 74% IP rpm: 30 psi
Minimum between 74% and 100% IP rpm: Varies linearly from 30 to 75 psi	Minimum between 74% and 100% IP rpm: Varies linearly from 30 to 90 psi
Minimum Above 100% IP rpm: 75 psi	Minimum Above 100% IP rpm: 90 psi

Trent 1000-A2, Trent 1000-C2, Trent 1000-D2, Trent 1000-E2, Trent 1000-G2, Trent 1000-H2, Trent 1000-J2, Trent 1000-K2, and Trent 1000-L2

Minimum Ground idle to 74% IP rpm:	30 psi
Minimum between 74% and 100% IP rpm:	Varies linearly from 30 to 90 psi
Minimum Above 100% IP rpm:	90 psi

NOTE 5. The take-off rating and its associated operating limitations may be used for up to 10 minutes in the event of engine out contingency, but their use is otherwise limited to not more than 5 minutes.

NOTE 6. **MAXIMUM PERMISSIBLE COMPRESSOR AIR BLEEDS**

The Trent 1000 engines do not supply compressor air for airframe ventilation (Cabin Bleed), but do supply compressor air for preventing ice build-up on the engine nacelle (Cowl Thermal Anti-Ice (CTAI)).

Nacelle thermal anti-icing flow demand (HP3) is modulated via a regulating valve.

Engine Power Setting TET (K)	Maximum Cowl Thermal Anti Ice Flow % Core Mass Flow (W26)
Idle to 1430	2.67
1430 to 1785	2.67 to 1.25 varying linearly
1785 to 1820	1.25 to 0.54 varying linearly
1820 and above	0.54

W26 represents the air mass-flow through the core of the engine.

NOTE 7. Life-limited parts are identified in Time Limits Manual (See NOTE 8).

The Trent 1000 cyclic life limits are based on a commercial mission cycle, which consists of a start, takeoff, climb, cruise, descent, and landing. Use (or non-use) of a fan reverser for braking during landing does not affect cycle counts. Each of the following constitutes one cycle:

- (1) a flight consisting of a takeoff and landing,
- (2) a touch-and-go landing or simulated touch-and-go landing (no weight on wheels) for pilot training.

NOTE 8. Trent 1000 manuals submitted under EASA requirements and accepted as equivalent to 14 CFR § 33.4 and 14 CFR § 33.5 requirements are:

Trent 1000-A, Trent 1000-C, Trent 1000-D, Trent 1000-E, Trent 1000-G, and Trent 1000-H

OPERATING INSTRUCTIONS	INSTALLATION MANUAL	ENGINE MANUAL	TIME LIMITS MANUAL
OI-Trent 1000-B787	DNS 130613	E-Trent-10RR	For engines without Service Bulletin 72-G319 or Modification 72-G319 incorporated: T-Trent-10RR
			For engines with Service Bulletin 72-G319 or Modification 72-G319 incorporated: T-Trent-10RRB

Trent 1000-A2, Trent 1000-C2, Trent 1000-D2, Trent 1000-E2, Trent 1000-G2, Trent 1000-H2, Trent 1000-J2, Trent 1000-K2, and Trent 1000-L2

OPERATING INSTRUCTIONS	INSTALLATION MANUAL	ENGINE MANUAL	TIME LIMITS MANUAL
OI-Trent 1000-B787C1	DNS 193530	E-Trent-10RC	T-Trent-10RRC

NOTE 9. Service bulletins, structural repair manuals, vendor manuals, and engine maintenance manuals, which contain a statement that the document is approved by the European Aviation Safety Agency, are accepted by the FAA and are considered FAA approved. These approvals pertain to the design data only.

NOTE 10. These engines are fitted with a Digital Electronic Engine Fuel Control system in which the software is designated as follows according to EUROCAE ED-12B/RTCA DO178B:

- EEC: Level “A”.
- EMU: Level “E”, except that the flight deck vibration display is Level “C”.

NOTE 11. The engine is approved for a maximum exhaust gas overtemperature of 920°C for inadvertent use due to abnormal operation for periods up to 20 seconds without requiring rejection of the engine from service or maintenance action other than to correct the cause. The cause of the overtemperature must be investigated and corrected.

NOTE 12. VARIANTS

Trent 1000-A	Basic model.
Trent 1000-C	Same as basic model except for increased thrust rating.
Trent 1000-D	Same as Trent 1000-C except flat rated to ISA +20°C with a takeoff thrust increase (varying from 0.2 to 1.4 percent) scaled in as a function of the takeoff roll Mach number.
Trent 1000-E	Same as basic model except for decreased thrust ratings.
Trent 1000-G	Same as basic model except for increased Take-off thrust ratings.
Trent 1000-H	Same as Trent 1000-E except for increased Take-off thrust ratings.
Trent 1000-A2	Same as Trent 1000-A/1 with increased flight load capability, increased turbine entry temperature, a two-minute transient overtemperature limit, and a takeoff thrust increase (varying from 0.2 to 1.4 percent) scaled in as a function of the takeoff roll Mach number.
Trent 1000-C2	Same as Trent 1000-A2 except for increased thrust ratings.
Trent 1000-D2	Same as Trent 1000-C2 except flat rated to ISA +20°C.
Trent 1000-E2	Same as Trent 1000-A2 except for decreased thrust ratings.
Trent 1000-G2	Same as Trent 1000-A2 except for increased Take-off thrust ratings.

NOTE 12. (continued)	Trent 1000-H2	Same as Trent 1000-E2 except for increased Take-off thrust ratings.
	Trent 1000-J2	Same as Trent 1000-A2 except for increased Take-off thrust ratings.
	Trent 1000-K2	Same as Trent 1000-J2 except flat rated to ISA +18°C.
	Trent 1000-L2	Same as Trent 1000-D2 except flat rated to ISA +20°C.

NOTE 13. The engine models have demonstrated eligibility for ETOPS under 14 CFR §33.201 for a maximum diversion time of 330 minutes. The Trent 1000-A, Trent 1000-C, Trent 1000-D, Trent 1000-E, Trent 1000-G, Trent 1000-H, Trent 1000-A2, Trent 1000-C2, Trent 1000-D2, Trent 1000-E2, Trent 1000-G2, Trent 1000-H2, Trent 1000-J2, Trent 1000-K2, and Trent 1000-L2 engine models have complied with the requirements of §§ 33.4 (A33.3(c)), 33.71(c)(4) and 33.201, and are therefore eligible for installation on Extended Operations (ETOPS) and Early ETOPS approved airplanes. The demonstrated diversion time is 330 minutes at MCT plus 15 minutes at hold power. Note, that ETOPS eligibility does not constitute airplane or operational level approvals necessary to conduct ETOPS flights.

NOTE 14. The engine models are approved for Time Limited Dispatch. The maximum rectification period for each dispatchable state is specified in the Installation Manual.

NOTE 15. These engines are approved for use in thrust reverse operation.

NOTE 16. Deleted

NOTE 17. Engines incorporating Service Bulletin 72-G319 or Modification 72-G319 are identified on the engine name plate by "/01" in the Build Standard block.

Engines incorporating deactivation of the fuel return to tank system are identified by the modification Service Bulletin 72-G893. In addition, these engines are identified on the engine name plate by "/01A" in the Build Standard block.

NOTE 18 The following emissions standards promulgated in 14 CFR Part 34, Amendment 5A, effective October 23, 2013 and 40 CFR Part 87, effective July 18, 2012 have been complied with for the Trent 1000-A, Trent 1000-C, Trent 1000-D, Trent 1000-E, Trent 1000-G, Trent 1000-H, Trent 1000-A2, Trent 1000-C2, Trent 1000-D2, Trent 1000-E2, Trent 1000-G2, Trent 1000-H2, Trent 1000-J2, Trent 1000-K2, and Trent 1000-L2 engine models:

- Fuel Venting Emission Standards: 14 CFR §§ 34.10(a) and 34.11, and 40 CFR §§ 87.10(a) and 87.11
- Smoke Number (SN) Emission Standards: 14 CFR §34.21(e)(2) and 40 CFR § 87.23(c)(1)
- Carbon Monoxide (CO) Emission Standards: 14 CFR § 34.21(d)(1)(ii) and 40 CFR § 87.23(c)(1)
- Hydrocarbons (HC) Emission Standards: 14 CFR § 34.21(d)(1)(i) and 40 CFR § 87.23(c)(1)
- Oxides of Nitrogen (NOx) Emission Standards: 14 CFR § 34.23(b)(1) and 40 CFR § 87.23(c)(3)

In addition to the FAA's finding of compliance based on the certification requirements defined in this TCDS, RR has declared that the ICAO emissions standards identified in Annex 16, Volume II, Third Edition, Part III, Chapter 2, Section 2.2.2 for SN, Section 2.3.2 for CO and HC, Section 2.3.2.e.3 for NOx (also known as CAEP/8), and Part II Chapter 2 for fuel venting have been demonstrated.

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