



# SCHWEIZER SERVICE BULLETIN

DB-021  
24 Oct 2007

MANDATORY

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**SUBJECT:** RESTRICTIONS IN ROLLS-ROYCE TURBINE ENGINE OPERATION

**MODELS AFFECTED:** • All 269D Model Helicopters.

**TIME OF COMPLIANCE:** Upon receipt of this Service Bulletin.

**REFERENCE:** Rolls-Royce Commercial Engine Bulletin CEB A-1400 Revision 1, Dated 20 Aug, 2007.

**PREFACE:** • Rolls-Royce ALERT Commercial Engine Bulletin CEB A-1400 has been issued informing operators of 250-C20 series engines, that the engine now has specific N<sub>2</sub> speed range restrictions. Pilots and maintenance personnel are encouraged to review the attached Engine Bulletin and note that log book entries and possible maintenance actions are required when the N<sub>2</sub> speed restrictions are exceeded.

- Failure to comply with this Service Bulletin may lead to failure of the third stage turbine wheel and subsequently cause serious injury, death, and or property damage.

**FAA APPROVAL:** Technical aspects of this Service Bulletin are FAA approved.

**PROCEDURE:**

- Perform all procedures specified in subject CEB and future revisions published by Rolls-Royce.
- Record compliance with this Service Bulletin (DB-021) in the aircraft records.

## WEIGHT AND BALANCE

Weight and Balance are not affected

# ALERT COMMERCIAL ENGINE BULLETIN



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## ENGINE, TURBINE ASSEMBLY - STEADY-STATE OPERATION AVOIDANCE RANGE LIMIT

### 1. PLANNING INFORMATION

#### A. Effectivity

##### (1) Engines

All Rolls-Royce Model 250-C20, -C20R, -B17 and -B17F Series engines are affected by this Commercial Engine Bulletin (CEB).

##### (2) Spares - Not affected

#### B. Reason

Rolls-Royce has revised the N2 Speed Limit Tables for all Series II engines. The new tables are revised to include the Speed Avoid range of 24,967 rpm (75% N2) to 29,296 rpm (88% N2). The Speed Avoid Range is not applicable for engine operation at or below 85 shaft horsepower (equivalent to 91.5 ft.lbs. of torque). These revised limits result from recent third-stage turbine wheel investigations.

#### C. Description

Operators are now required to avoid steady state operation in the speed avoid ranges as specified by engine type in the following wording and attached charts. Transition through the speed range is to be accomplished as expeditiously as possible for engines operating above 85 shaft horsepower (equivalent to 91.5 ft.lbs. of torque).

#### D. Approval

Technical aspects are FAA approved.

#### E. Compliance

Compliance Code 1: To be complied with immediately.

#### F. Interchangeability - Not affected

#### G. Material Availability

PART NUMBER	QTY/ENGINE	NAME	MODEL
23065833	1	Third-stage, Turbine Wheel	C20 Series, C20R Series
23065818	1	Third-stage, Turbine Wheel	C20 Series, C20R Series
23065818	1	Third-stage, Turbine Wheel	B17 Series, B17F Series C20S

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250-C20 Series	CEB A-1400
250-C20R Series	CEB A-72-4095
250-B17 Series	TP CEB A-1343
250-B17F Series	TP CEB A-72-2091

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- H. Tooling - Not affected
- I. Weight and Balance - Not affected
- J. Electrical Load Data - Not affected
- K. References
  - (1) 10W2 Operation and Maintenance Manual, Turboshaft Models, 250-C20, -C20B, -C20F, -C20J, -C20S, -C20W (OMM).
  - (2) 10W3 Overhaul Manual, Turboshaft Models 250-C20, -C20B, -C20F, -C20J, -C20S, -C20W (O/H).
  - (3) 10W4 Illustrated Parts Catalog, Turboshaft Models 250-C20, -C20B, -C20C, -C20F, -C20J, -C20S, -C20W (IPC).
  - (4) 11W2 Operation and Maintenance Manual, Turboprop Models 250-B17, -B17B, -B17C, -B17D, -B17E (OMM).
  - (5) 11W3 Overhaul Manual, Turboprop Models 250-B17, -B17B, -B17C, -B17D, -B17E (O/H).
  - (6) 11W4 Illustrated Parts Catalog, Turboprop Models 250-B17, -B17B, -B17C, -B17D, -B17E (IPC).
  - (7) CSP21007 Operation and Maintenance Manual, Turboshaft Models 250-C20R, -C20R/1, -C20R/2, -C20R/4 (OMM).
  - (8) GTP5232-3 Overhaul Manual, Turboshaft Models 250-C20R, -C20R/1, -C20R/2, -C20R/4 (O/H).
  - (9) CSP23007 Illustrated Parts Catalog, Turboshaft Models 250-C20R, -C20R/1, -C20R/2, -C20R/4 (IPC).
  - (10) CSP21008 Operation and Maintenance Manual, Turboprop Models 250-B17F, -B17F/1, -B17F/2 (OMM).
  - (11) GTP5243-3 Overhaul Manual, Turboprop Models 250-B17F, -B17F/1, -B17F/2 (O/H).
  - (12) CSP23008 Illustrated Parts Catalog, Turboprop Models 250-B17F, -B17F/1, -B17F/2 (IPC).
- L. Prerequisites - None

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250-B17 Series	TP CEB A-1343
250-B17F Series	TP CEB A-72-2091

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## 2. ACCOMPLISHMENT INSTRUCTIONS

### A. All Rolls-Royce Model 250 Series II Engines.

(1) Turbine transient speed incursions into the speed avoid range, which exceed 60 seconds above 85 shaft horsepower (equivalent to 91.5 ft.lbs. of torque), require specific action as described in this CEB.

(Ref. FIG. 1, 2, 3 and 4)

(a) An entry into the engine logbook records shall be made for any excursion more than 60 seconds at a time in the speed avoid range of 24,967 RPM (75% N2) and 29,296 RPM (88% N2) while operating above 85 shaft horsepower (equivalent to 91.5 ft.lbs. of torque). Record the time spent in the speed avoid range during the event.

(b) In the event that a turbine is operated above 85 shaft horsepower (equivalent to 91.5 ft.lbs. of torque) in the speed avoid range in excess of 60 seconds in any one event, the turbine unit must be removed from service if P/N 23065833 or P/N 23065818 is installed. The third-stage turbine wheel (slotted design P/N's 23065833 and 23065818) must be scrapped, and a serviceable replacement installed before that turbine unit may be re-installed in an aircraft. For excursions into the speed avoid range for any other part number third-stage turbine wheel, no action per this CEB is required.

NOTE: The 60 second speed avoid range operation restriction in the range between 24,967 RPM (75% N2) and 29,296 RPM (88% N2) while operating above 85 shaft horsepower (equivalent to 91.5 ft.lbs. of torque) is not cumulative, but applies to each event within the range.

## 3. MATERIAL INFORMATION - Not applicable

CUSTOMER SUPPORT  
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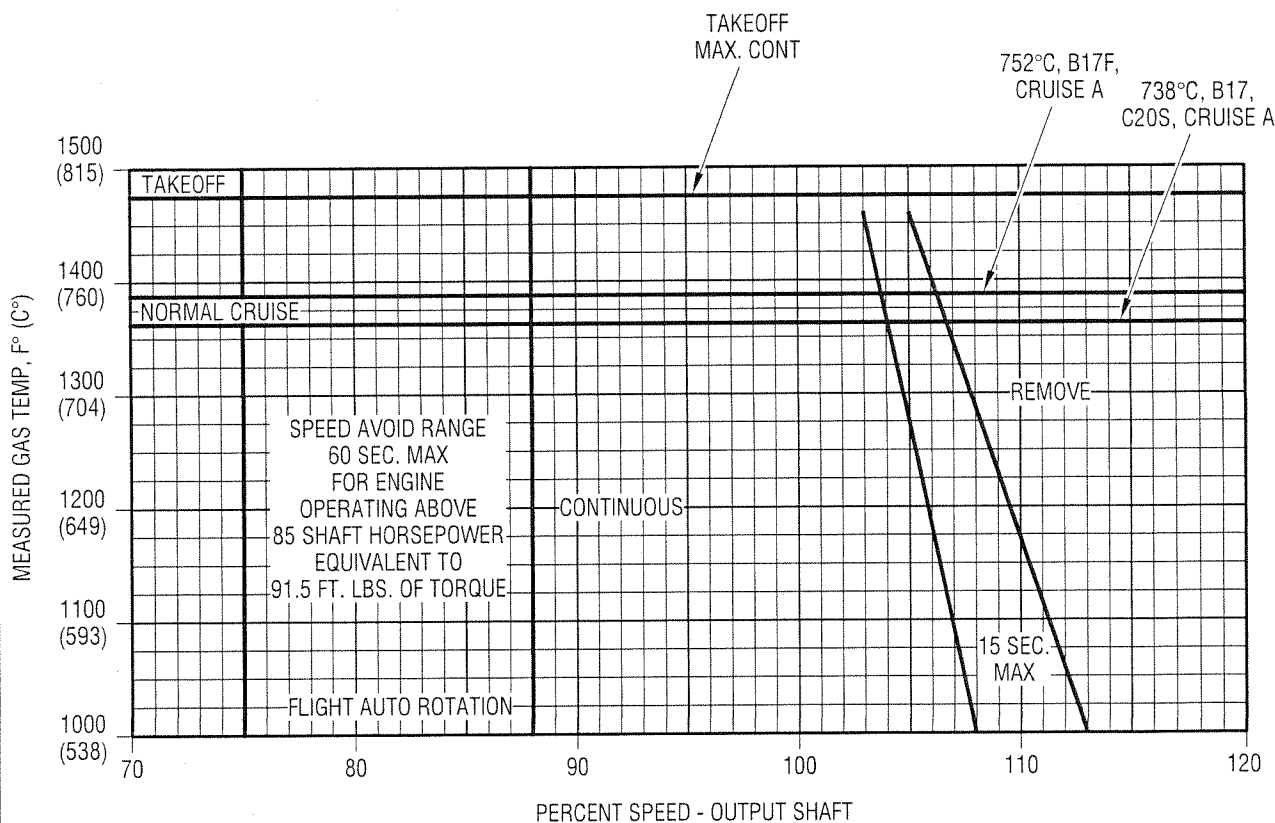
250-C20 Series	CEB A-1400
250-C20R Series	CEB A-72-4095
250-B17 Series	TP CEB A-1343
250-B17F Series	TP CEB A-72-2091

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### NOTE:

TRANSITION THROUGH THE SPEED AVOID RANGE IS TO BE ACCOMPLISHED AS EXPEDITIOUSLY AS POSSIBLE FOR ENGINE OPERATING ABOVE 85 SHAFT HORSEPOWER EQUIVALENT TO 91.5 FT. LBS. OF TORQUE.

ADS212BA

250-C20 Maximum Allowable Output Shaft Speeds  
FIG. 1

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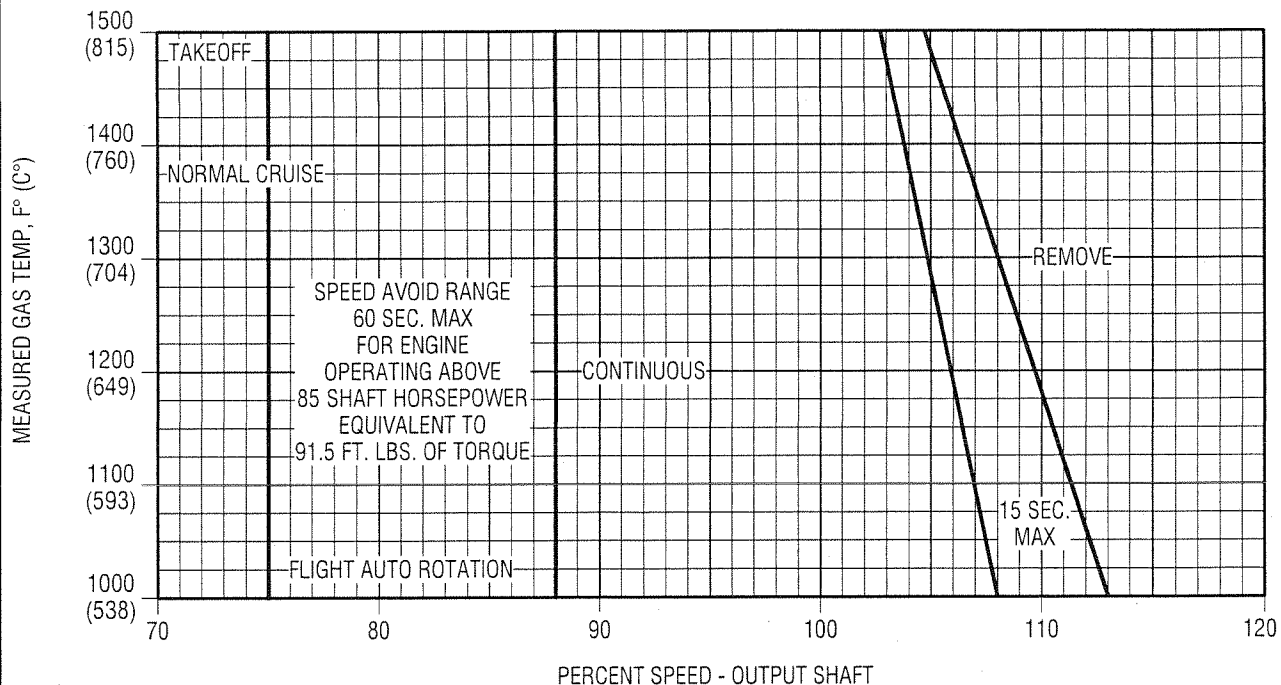
250-C20 Series           CEB A-1400  
250-C20R Series       CEB A-72-4095  
250-B17 Series         TP CEB A-1343  
250-B17F Series       TP CEB A-72-2091

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ADS213BA

250-C20B, -C20F, -C20J, -C20W Maximum Allowable Output Shaft Speeds  
FIG. 2

December 22, 2006  
Revision 1  
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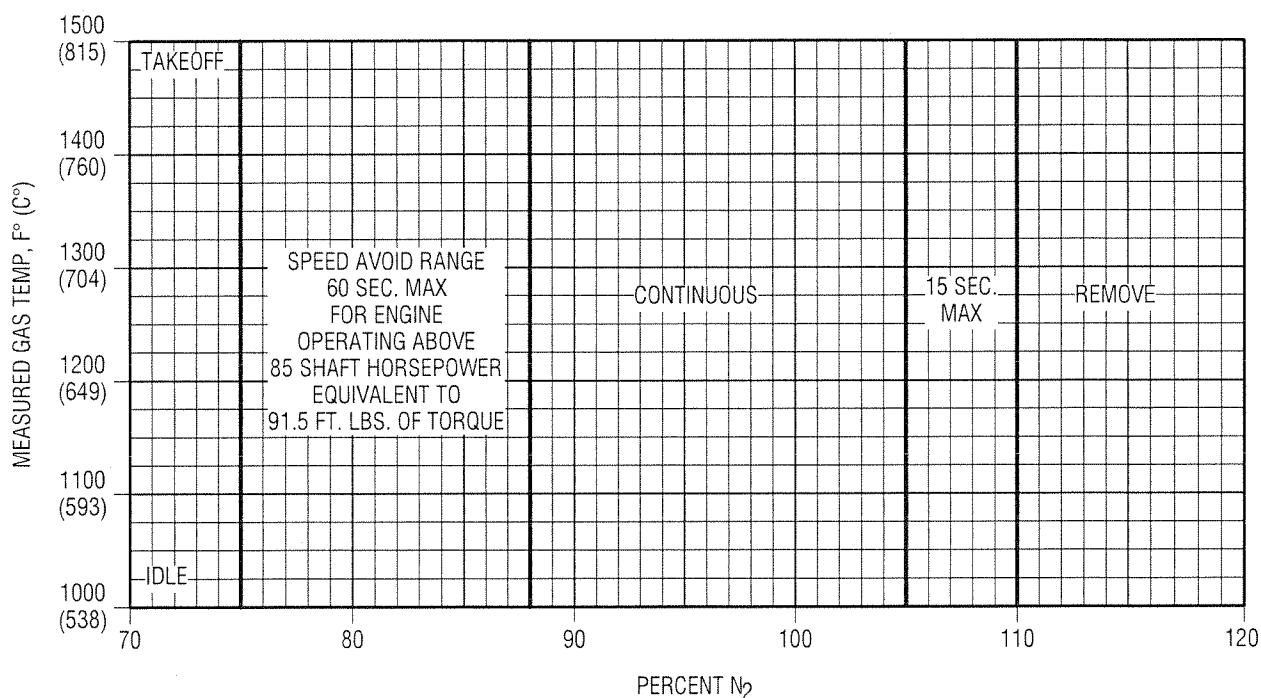
250-C20 Series            CEB A-1400  
250-C20R Series        CEB A-72-4095  
250-B17 Series         TP CEB A-1343  
250-B17F Series       TP CEB A-72-2091

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250-B17, -B17F, -C20S Maximum Allowable Output Shaft Speeds  
FIG. 3

December 22, 2006  
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250-C20 Series           CEB A-1400  
250-C20R Series       CEB A-72-4095  
250-B17 Series        TP CEB A-1343  
250-B17F Series     TP CEB A-72-2091

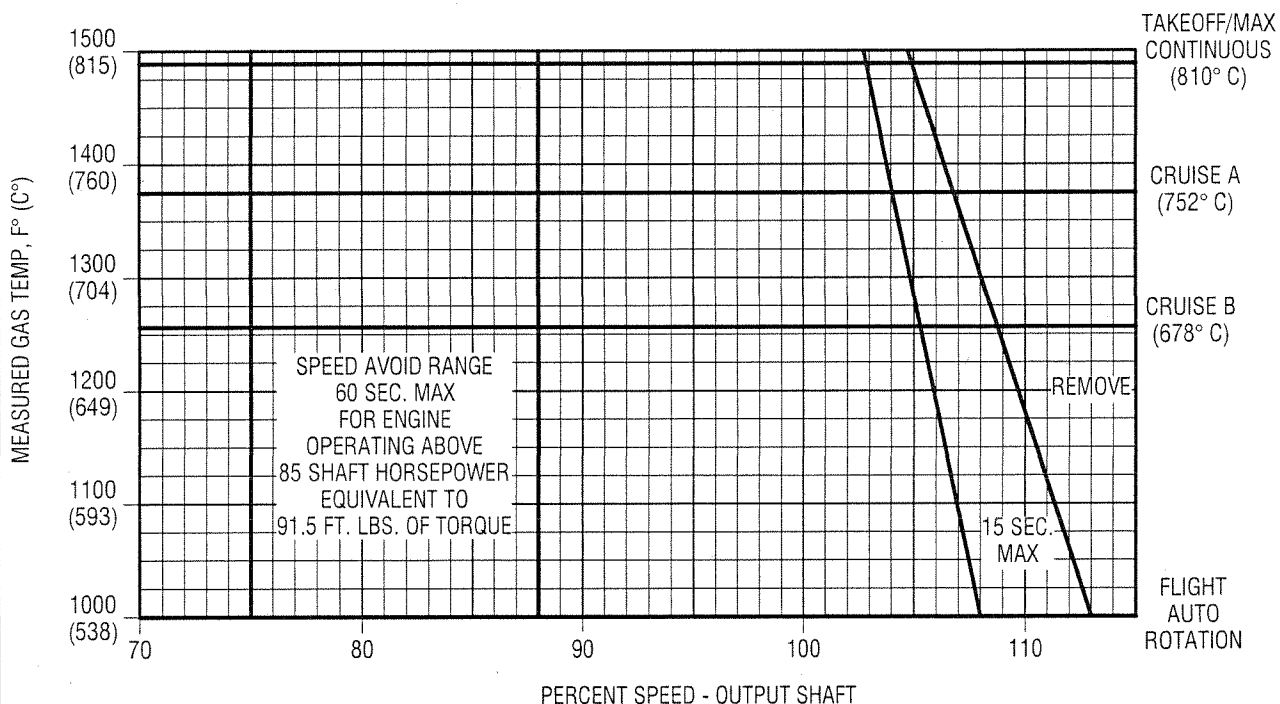
ADS217BA

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ADS218BA

250-C20R Maximum Allowable Output Shaft Speeds  
FIG. 4

December 22, 2006  
Revision 1  
August 20, 2007

250-C20 Series            CEB A-1400  
250-C20R Series        CEB A-72-4095  
250-B17 Series         TP CEB A-1343  
250-B17F Series       TP CEB A-72-2091