GENERAL SERVICE LETTER

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JFE/FL/CL

General Service Letter no. 2283/04 - 7th issue

This General Service Letter supersedes the issue dated July 31, 2017

Subject: All engines
Cycle counting.

Dear Sir or Madam,

The purpose of the 7th issue of this General Service Letter is to inform you of:

- The update of the list of primary counting systems (Appendix 1).
- The update of the list of the counting aid systems (Appendix 2).

➢ **General (reminders):**

For each engine, Airworthiness Limitations Section of the Maintenance Manual specifies the certified counting methods.

At the EASA's request (European Union Aviation Safety Agency), the cycle counting systems have been classified into 2 types:

- **Primary counting systems,**
- Counting systems not qualified as primary counting systems. If the counting performed by these systems was validated by Safran Helicopter Engines, these systems are called **primary counting systems.**

In all cases and for any counting system used, it is the responsibility of the user to count and record cycles in the engine log book and/or log cards of the relevant modules.

We remind you that inaccurate cycle counting may result in an event of uncontained High Energy Debris type, following for instance a disk burst.

➢ **Primary counting system:**

The list of **primary counting systems** is provided as a reminder in Appendix 1 of this General Service Letter.

For these **primary counting systems**, the maintenance operations to be performed and their frequencies are specified in the Airworthiness Limitations Section of the engine Maintenance Manual concerned.

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- **Counting aid systems:**

The list of automatic counting systems validated as **counting aid systems** by Safran Helicopter Engines is provided in Appendix 2 of this General Service Letter.

These counting aid systems require regular specific operations in order to check coherence of the recorded cycles and correct operation of the system over time.

For counting aid systems designed and sold by Safran Helicopter Engines, these specific operations and their frequencies are defined in the Airworthiness Limitations Section of the Maintenance Manual of the engine concerned.

For other systems, it is the operator's responsibility to refer to the manufacturer's documentation as well as validate the specific operations to be applied with his/her local Authority.

Safran Helicopter Engines cannot confirm the accuracy of the cycle counts produced by cycle counting systems that do not fall within either of the above-mentioned categories. It is therefore up to the users of such systems to verify the accuracy of the counting.

Safran Helicopter Engines Service Bulletins notify operators of any changes to counting aid systems designed and sold by Safran Helicopter Engines. For systems not designed or sold by Safran Helicopter Engines, the operator must refer to the manufacturer's documentation.

Please contact us if you require further information or assistance.
Yours faithfully,

Technical Support Department

J.F. ESCURET

Encl.: 2

APPENDIX 1

List of the primary counting systems

- Digital Engine Control Unit (DECU) fitted on ARRIEL 2 engines (all variants)
- Digital Engine Control Unit (DECU) fitted on ARRIUS 2 engines (all variants, 2F excluded)
- Digital Engine Control Unit (DECU) fitted on TM 333 2B2 and 2M2 engines
- Digital Engine Control Unit (DECU) fitted on MAKILA 2 engines (all variants)
- Digital Engine Control Unit (DECU) fitted on ARDIDEN 1 engines (all variants)
- Digital Engine Control Unit (DECU) fitted on ARRIUS 1A1 engines
- Digital Engine Control Unit (DECU) fitted on ARRANO 1A engines
- Digital Engine Control Unit (DECU) fitted on ANETO 1K engines

APPENDIX 2
List of the counting aid systems

- **Systems designed and sold by Safran Helicopter Engines:**
  - Digital Engine Control Unit (DECU) fitted on MAKILA 1 A2 engines.
  - Tachometer box that has the cycle counting function and display unit fitted on certain ARRIEL 1 engine variants (this system does not count partial cycles C2)*.

- **Systems sold by AIRBUS HELICOPTERS:**
  - VEMD fitted on EC 120 aircraft,
  - VEMD fitted on AS 350 B2 / ARRIEL 1D1 engine (this system does not count partial cycles C2)*,
  - EUROARMS system fitted on AS 332 MK2 / MAKILA 1A2 engines (only the values of cycles consumed mission per mission can be used).
  - M'ARMS system fitted on:
    - EC 145 / ARRIEL 1E2 engine (this system does not count partial cycles C2)*,
    - EC 135, EC 155, AS 365 N3, EC 225/725 engines (only the values of cycles consumed mission per mission can be used).

- **System sold by SMITHS INDUSTRIES:**
  - Counter fitted on AS 332 MK 1 / MAKILA 1A/1A1 engines.

- **Systems sold by AKV, Inc.:**
  - P/N 350NGTEC
    - Arriel 1 Pre Mod TU77 Linear Ver 2: Arriel 1B Pre-TU77 engines,
    - Arriel 1 Post Mod TU77 Linear Ver 2: Arriel 1B Post-TU77, 1D, 1D1 engines.
  - P/N BK1172XCC
    - Arriel 1E2 Linear Ver 2: Arriel 1E2 engines.
  - P/N AS332L2XCC
    - Makila 1A /1 Linear Ver 1: Makila 1A, 1A1 engines.

- **System sold by Safran Electronics and Defense:**
  - HELICOM V2+ NUM – P/N 4723P & P/N 4733P – Version: SHE145V1 – EC145 / ARRIEL 1E2 engines.

*Note: For systems that do not count C2 partial cycles, these cycles must systematically be counted per the method specified in chapter 5 of the engine Maintenance Manual concerned and added to C2 cycles that are calculated by the system.