



ATTACHMENT 6

MAINTENANCE AND POWERPLANT GROUP CHAIRMAN'S FACTUAL REPORT

ERA17MA316

**Turbomeca SL No. 1642 (1642/96/ARRIEL/25), 3rd issue, dated February 16,
2018, titled ARRIEL 1 – ALL VARIANTS OIL COKING IN THE GAS GENERATOR
REAR BEARING HOUSING**

SERVICE LETTER

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Service Letter No. 1642/96/ARRIEL/25 – 3rd issue

This Service Letter supersedes the following Service Letters:

SL No. 1642/96/ARRIEL/25 dated May 15, 1996 SL No. 1478/92/ARL/133 – 2nd issue, dated May 21, 1992
SL No. 1479/92/AR1C/100 dated July 7, 1992 SL No. 1480/92/AR1D/24 – 2nd issue dated May 21, 1992
SL No. 1684/96/ARL/145 dated February 5, 1996 SL No. 1685/96/AR1D/35 dated February 5, 1996
SL No. 1686/96/ARL/146 dated February 5, 1996 SL No. 1687/96/AR1C/110 dated February 5, 1996
SL No. 1690/96/AR1E/14 dated February 5, 1996 SL No. 1691/96/AR1K/38 dated February 5, 1996
SL No. 1692/96/AR1S/60 dated February 5, 1996 SL No. 1765/97/ARL/153 dated March 28, 1997
SL No. 1779/97/AR1C/114 dated April 15, 1997 SL No. 1780/97/AR1D/41 dated April 15, 1997
SL No. 1844/99/ARL/157 dated February 22, 1999 SL No. 1845/99/AR1D/44 dated February 22, 1999

Subject: ARRIEL 1 – All variants
Excessive oil coking in the gas generator rear bearing housing

Dear Sir or Madam,

Safran Helicopter Engines have been informed of occurrences resulting from excessive coking of the gas generator rear bearing.

This letter, is a reminder of the maintenance actions and operating procedures which we recommend you to apply in order to prevent excessive coke formation in the gas generator rear bearing.

Failure to apply these maintenance actions and operating procedures is liable to be detrimental to the correct operation of the engine in flight.

A. Consequences of the excessive coke formation in the gas generator rear bearing.

The excessive coke formation in the gas generator rear bearing may lead to clogging of the rear bearing oil scavenging system. Unable to flow through the clogged scavenge pipe, the oil shall spill out of the rear bearing housing into the air path and/or the rear bearing air vent pipe.

This oil overflow may cause:

- Smoke in the engine exhaust pipe.
- Drainage of the oil from the oil tank followed by illumination of the "min. oil pressure" alarm. Under such conditions, according to the type of helicopter, the flight manual may call up commanded shutdown of the engine or an immediate landing,
- Oil mist in the engine compartment which may result in a fire. In case of fire warning light indication, the procedure is described in the helicopter flight manual.

In the event of illumination of the "min. oil pressure" alarm and if the operational situation does not allow a commanded shutdown of the engine or an immediate landing, the rear bearing could be damaged due to the absence of lubrication. This damage may eventually result in an uncommanded in-flight engine shutdown.

Note: Refer to the flight manual in force for the procedures to be applied.

B. Reminder of the maintenance actions and operating procedures to be applied

In order to prevent excessive coke formation in the gas generator rear bearing, Safran Helicopter Engines recalls below the maintenance tasks applicable to the gas generator rear bearing, as well as the recommendations to be applied prior to engine shutdown, and finally the recommendations on the use of oil.

1. Maintenance of the gas generator rear bearing

- *"Inspection and cleaning of the gas generator rear bearing oil return strainer"* in accordance with task 79-38-00-210-801 post TU208.
According to the number of coke particles found during inspection of the strainer, with respect to the decision table provided in task 71-02-07-280-802, it is mandatory to clean the rear bearing.
- *"Check of the clogging state of the rear bearing"* in accordance with task 72-43-10-280-801. This permeability check should be considered as monitoring of the trend of the quantity of oil collected during successive checks. According to the quantity of oil collected and of the monitoring trend, it is mandatory to clean the rear bearing.
This task also consists in checking the cleanliness of the inner walls of the tube, the nipple and the rear bearing oil scavenge pipe.
- *"Inspection and cleaning of the gas generator rear bearing return electrical magnetic plug"* in accordance with task 79-38-00-900-801 only POST TU208 enables detection of the early stages of damage to the bearing.

2. Stabilization time prior to engine shutdown

After engine shutdown, the temperature rise of the parts in the rear bearing zone, due to the thermal inertia of the adjacent hot parts is a contributing factor to the appearance of the coking phenomenon.

Safran Helicopter Engines therefore stresses the need to fulfill the 30s stabilization time at ground idle as required in the flight manual.

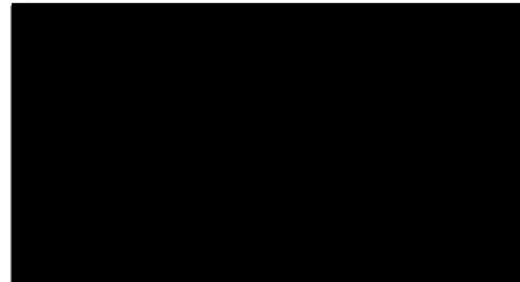
3. Oils

In order to reduce the risk of coking occurrence in the rear bearing, Safran Helicopter Engines recommends:

- The use of an HTS (High Thermal Stability) oil as specified in chapter 71 of the Maintenance Manual.
- Compliance with the oil drainage frequency specified in the maintenance plan. Additionally, a check of the strainer of the electrical magnetic plug installed on the rear bearing return pipe as well as an oil drainage are required in the event of a change of oil brand, and in the event of replacement of module M03 if the last oil used on this module could have been different from that of the engine. Refer to the Maintenance Manual task 79-00-00-610-803 which can conduct to clean the rear bearing depending on the observed deposit carbon in the strainer.
- Monitoring of your oil using the "RULER" tool. By dosage of the antioxidant agents present in the oil of your engine, this method determines the suitable frequency for oil drainage/oil change (Refer to the Maintenance Manual 71-02-08-280-802-A01).

Please contact us if you require further information or assistance.

Yours sincerely,



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Technical Support Department