



SERVICE INFORMATION LETTER

SUBJECT: IDG LOW OIL LEVEL

ATA CHAPTER: 24-21

AIRCRAFT TYPE: A300, A310, A300-600, A318, A319, A320, A321, A330, A340

APPLICABILITY: All

REFERENCES:

- TSM A318, A319, A320, A321: 24-21-00 PB 201
- TSM A330, A340: 24-21-00 PB 201
- TSM A310, A300-600: 24-11-00 PB 101
- FIM A300: 24-11-00 PB 101
- AMM A318, A319, A320, A321: 24-21-00 PB 601
- AMM A330, A340: 24-21-00 PB 601
- AMM A310, A300-600: 24-11-00 PB 601
- AMM A300: 24-11-00 PB 601
- Primus AB19880
- IDG servicing CD-ROM – Ref. 953.0616/01

1. PURPOSE:

This SIL is revised to update the A300, A300-600, A310, A318, A319, A320, A321, A330, A340 AMM references, the A310, A300-600 TSM references and the A300 FIM reference.

One A319 operator has reported a dual IDG loss while the aircraft was operated under negative g-load conditions. The aircraft remained within its flight envelope. Maintenance records of the concerned aircraft have shown that both IDGs had a history of recurring servicing due to low oil level.

The loss of the IDGs at the time of the event is most likely resulting from a too low oil level in both IDGs combined with the negative g-load conditions.

The purpose of this SIL is to advise operators of the maintenance actions to be taken in case of recurrent IDG low oil level.

SIL NUMBER: 24-073
PAGE: 1 of 4
DATE: Apr 01/2001
REVISION: 02, Jun 12/2007

**SERVICE INFORMATION LETTER****2. BACKGROUND:**

One A319 operator has reported the loss of two IDGs during a ferry flight. The RAT deployed and the CSM/G automatically took over the power supply of the essential network. Normal power supply was recovered once the crew had cycled both AC generator push buttons.

Analysis of the DFDR recordings shows vertical acceleration variations from +2.2g to -0.2g. The normal electrical power supply loss occurred at -0.2g, two seconds after the vertical acceleration had fallen below 0g. These flight conditions are within the flight envelope of the aircraft.

The operator maintenance records show that both IDGs were regularly refilled with oil quantities of more than one liter. This tends to indicate that both oil systems were leaking at a higher than normal rate, which could have led to the suspected low oil level at the time of the event. An IDG filled with the correct quantity of oil should (level indicated in the referenced AMM tasks) have withstood the above flight conditions as demonstrated during the qualification test of the IDG and during the aircraft certification flight tests.

3. DESCRIPTION:

The IDG is fitted with an inverse reservoir and inversion pump which maintains the charge pressure of the IDG in negative g-load conditions. During the aircraft development this system had been tested on the bench to demonstrate its proper operation. Flight tests under negative g-load have also demonstrated that the IDG is able to sustain variations of g-load imposed by the certification requirements.

It should be noted that the frequency governing principle of the IDG depends on a proper quantity of oil inside the IDG oil system. In particular, under negative g-load conditions, the quantity of oil needs to be within the green band to ensure that the inversion pump will be fed with oil.

During the reported event, the most likely scenario is that both IDGs were low on oil (below the green band) while going through zero g and staying near negative g values for a few seconds. It is very likely that in this condition the charge pressure could not be maintained and the IDG tripped off due to an under frequency.

SIL NUMBER: 24-073
PAGE: 2 of 4
DATE: Apr 01/2001
REVISION: 02, Jun 12/2007



SERVICE INFORMATION LETTER

4. AIRBUS RECOMMENDATION:**Oil leakage**

The IDG oil is used for cooling, lubrication and as an hydraulic fluid to mechanically regulate the rotation speed of the generator. Thus, the IDG system is not supposed to consume oil like a thermal machine. However, an oil leakage of 1cc per flight hour is accepted to cover the normal slight oil leakage that may exist in dynamic conditions at the input shaft seal.

In case of recurrent IDG low oil level, it is recommended to perform a trouble shooting of the entire IDG oil system. The oil leak may originate from the external oil system or the input shaft seal. A leak on the external oil system can be identified by a visual inspection of the IDG housing, servicing valves, fittings, external lines and cooler. An abnormal leak at the level of the input shaft seal can be detected at the engine draining system collector through the draining tube which is connected at the IDG pad of the engine gear box. These recommendations were introduced in the A320 family maintenance documentation and have been subsequently introduced in the documentation of the other aircraft programs.

The crew & maintenance observation entry point entitled “IDG x high oil consumption” and associated trouble shooting procedures are introduced in the following TSM and FIM chapters. They provide trouble-shooting advice to identify an oil leak on the IDG oil system or at the level of the input shaft seal.

- A318, A319, A320, A321: 24-21-00 PB 201
- A330, A340: 24-21-00 PB 201
- A310, A300-600: 24-11-00 PB 101
- A300: 24-11-00 PB 101

The oil consumption limit of 1cc per flight hour is introduced in above TSM chapters and in the following AMM oil level check procedures.

- A318, A319, A320, A321: 24-21-00 PB 601
- A330, A340: 24-21-00 PB 601
- A310, A300-600: 24-11-00 PB601
- A300: 24-11-00 PB 602

SIL NUMBER: 24-073
PAGE: 3 of 4
DATE: Apr 01/2001
REVISION: 02, Jun 12/2007

**SERVICE INFORMATION LETTER****IDG oil servicing**

Airbus in-service experience indicates that the IDG servicing procedure may not be strictly followed leading to incorrect oil level settings. As a result, low oil level warning may be triggered, usually reported just after a servicing has been accomplished.

So, because things are better done when they are fully understood, Airbus has produced a film which shows in a user-friendly manner how the oil system is filled with oil during the servicing. Rather than showing the AMM procedure step by step, the film provides an overview of the IDG oil system and explains with 3D animated pictures how the oil level is set inside the IDG.

The film is presented on a CD-ROM with an interactive mode allowing an easy navigation inside the IDG servicing presentation and a “Virtual Servicing” providing a concise summary of the film.

Procurement:**IDG servicing CD-ROM**

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