

## COMMENT RESPONSE DOCUMENT

EASA PAD No. 19-059

[Published on 10 April 2019 and officially closed for comments on 24 April 2019]

**Commenter 1: Boeing Asia Pacific Aviation Services (BAPAS) – Lim Kim Heng – 11/04/2019**

### Comment # 1

I am evaluating the above PAD for Scoot Tigerair Pte Ltd, B787 aircraft . Some its aircraft are installed with intermix engines ( Pack 'C' engine on one side and trent "TEN" on the opposite side), and would like to clarify the following statement:

For AD item (3)

(3) From the effective date of this AD, within 10 FC after IFSD of an engine on an aeroplane, accomplish an on-wing borescope inspection of all affected parts installed on the not-affected (no IFSD) engine of that aeroplane in accordance with the instructions of Section 3.C of the NMSB.

#### Question A:

Can I confirm the above statement when :

- 1) IFSD engine can be either pack "C" (Trent 1000-G2/ J2 ) or a Trent "TEN" (Trent 1000-G3/ J3 ) engine, as long as the not-affected (no IFSD) engine must be a Trent "TEN" (Trent 1000-G3/ J3 ),
- 2) Or the IFSD engine must also be Trent "TEN" (Trent 1000-G3/ J3 ) engines?

For AD item (5)

(5) From the effective date of this AD, do not operate an aeroplane having two engines installed that have accumulated a combined number of 1 400 FC or more. Management of affected engines can be accomplished in accordance with the instructions of Section 3.B of the NMSB.

#### Question B:

1. In this statement , for Scoot's B787 aircraft , the intermix engine model condition . Does the above statement still apply ? If it does, is the limit of 1400 FC still apply ?
2. Is there a grace period if both engine have exceed 1400FC, to do the de-pairing or must the operator ground the aircraft immediately before reaching 1400FC?

For example, at the aircraft on the flight back to home base the total FC have reach 1399FC. Do we need to ground the aircraft and do the engine change at oversea station ?

**EASA response:**

- A. Comment noted. Option 1) as described by the commenter is correct; the not-affected (no IFSD) engine that must be inspected, as required by §(3) of the AD, can only be a Trent 1000 TEN engine. An EASA AD cannot require any action on a product that is not identified in the Applicability of that AD.**
- B.1 Note that §(5) of the AD refers to section 3.B of the NMSB, which contains a Note that states “A Trent 1000 TEN engine paired with a Trent 1000 Pack B or C engine does not have a combined cyclic life limit”. This means that in an intermix situation (only 1 Trent 1000 TEN installed), there is no ‘combined’ FC limit.**
- B.2 EASA confirms there is no ‘grace’ period, since all operators are expect to be aware of the need to (re)act, prompted by NMSB and EASA PAD issuance. The 14 days between Final AD issue date and effective date will give operators additional time to respond, replacing an engine (NMSB section 3.B) before the AD becomes effective and prevent AOG.**
- No changes have been made to the Final AD in response to this comment.**

**Commenter 2: Boeing Asia Pacific Aviation Services (BAPAS) – Lim Kim Heng – 18/04/2019**

**Comment # 2**

While reviewing the compliance requirement for the item (2) of the above PAD requirement :

**After accumulation of 725 FC (see Note 1 of this AD), reduce the interval of the inspections as required by paragraph (1) of this AD to 25 FC.**

Could I confirm the reduction to 25 FC interval are to be done base at which following condition (1) or (2):

- 1) At the last inspection where is it done just before the engine reach 725 FC OR
- 2) At the next inspection after the engine have passed the 725FC.

As based on the above, different condition of calculating the due for the next inspection, there may be 1 less inspection .

Examples :

- 1) If Engine last done inspection was done at engine at 676FC , What is next inspection due :

676 FC + 25 FC = 701 FC next due, and follow by 726 FC (condition 1)



676 FC + 50 FC = 726 FC next due and follow by 751 FC (condition 2) (1 less inspection)

2) If Engine last done is at 701FC , What is next inspection due :

701 FC + 25 FC = 726 FC next due , and follow by 751 FC (condition 1)

701 FC + 50 FC = 751 FC next due and follow by 776 FC (condition 2) ( 1 less inspection)

Please advise.

**EASA response:**

**Comment agreed. Paragraph (2) of the Final AD has been amended to state** “Following the first inspection after exceeding 725 FC...etc.”. **This means that, in the scenarios specified by the commenter, the next inspection would be at 676 FC + 50 FC = 726 FC, next due before or at 751 (scenario 1); or 701 FC + 50 FC = 751 FC, next due at 776 FC (scenario 2).**

**Commenter 3: All Nippon Airways – Takuma Koga – 24/04/2019**

**Comment # 3**

Questions and Comments:

- A. In paragraph (4), shouldn't the words be “Section 3.A” rather than “Section 3.B”?
- B. In paragraph (6), shouldn't the words be “paragraph (1) to (3)” rather than “paragraph (1) or (3)”? Or is paragraph (2) excluded since this describes only a change in the repeat inspection intervals, and not the inspection instruction itself?
- C. For single engine cyclic life limit, the NMSB has a limitation of a life “no greater than 1000 cycles” since new, while paragraph (4) has a limitation of operation for “1000 FC or more”. Our understanding is that in the NMSB, the HPT blade is serviceable until 1000 cycles, but in the PAD it is serviceable until 999 cycles. Why are there differences between the two?
- D. In paragraph (7), removed engine prompted by the limitations given in paragraph (4) or (5) are to have the affected parts fully replaced to serviceable parts. However for example, one engine can be 600 cycles and the other can be 800 cycles when achieving a combined life of 1400 cycles given in paragraph (5). In this situation, does this mean that we still have to fully replace the affected parts when removing either one of the engines although it has not achieved 1000 cycles? Shouldn't the words be “paragraph (4)” rather than “paragraph (4) or (5)” in paragraph (7)?



- E. In paragraph (6), any crack indication found during inspection required by paragraph (1) or (3) (which both calls out instructions in Section 3.C of the NMSB), is not acceptable and to reject the engine. If the NMSB is revised and allows fly-on limits in the future, will the AD also be revised to have fly-on limits, or will there be AMOC approval?

**EASA response:**

- A. Comment agreed. Reference to Section 3.B of the NMSB is inappropriate and has been removed from the Final AD. Reference to section 3.A of the NMSB is not necessary.**
- B. Comment noted. EASA confirms that paragraph (2) does not require inspections, only to reduce the interval of the inspections as required by paragraph (1).**
- C. Comment not agreed. The AD requires not to operate an engine that “has accumulated 1 000 FC or more”. This is an engine that has already flown its 1,000<sup>th</sup> cycle (since first flight, or since last in-service HPT blade set replacement(s), as applicable), i.e. operating an engine up to 1,000 FC is allowed.**
- D. Comment not agreed. In the scenario of §(5) of the AD, one of the engines could have 1,000 FC, at which time that engine cannot be operated anymore (§4 of the AD) until a full set of serviceable parts is installed, as §(7) specifies.**
- E. Comment agreed. EASA has recently approved the fly-on time, which will be the subject of Revision 2 of the NMSB. The Final AD has been amended accordingly.**

**No changes have been made to the Final AD in response to points B, C and D of this comment.**

