

COMMENT RESPONSE DOCUMENT

EASA PAD No. 21-013

[Published on 02 February 2021 and officially closed for comments on 02 March 2021]

Commenter 1: British Airways Engineering – Oliver Angell – 03/02/2021

Comment # 1

This PAD requires a specific population of High Pressure Turbine Cases to be removed from service within specified intervals. The cases are being identified based upon the serial number of specific parts (ports) which are brazed/welded onto the cases during manufacture. Of note, within the PAD and associated SB, there is no identification of the top level HPT Case serial numbers (which represents the number tracked by operators for life limiting/inspection purposes).

This results in a few concerns with how the AD and SB is hoping to achieve control:

1. Airlines/Operators are only provided with the Part Number and Serial Number of the HPT Case during receipt of engines (new and post shop visit).
2. The four ports (permanently attached to the HPT case) are not removable and not individually tracked or identified in the data provided by CFM to operators. Typically this data is retained during manufacturing of this part, however the vendor has admitted that it's been unable to identify the location of all affected ports (based on lost/incomplete manufacturing records).
3. Operators are now performing physical inspections to locate the affected HPT ports and their parent case S/N – this information is being fed back to CFM per SB LEAP-1A-72-00-0417-01A-930A-D.

By providing only the Port Serial Numbers, the tracking of affected components is significantly impaired, especially when the HPT Case (which is the tracked item) is not identified. Of note, given there are a maximum of 8 HPT Cases affected by this issue, the small population should be easily identifiable (as per the data being collected by CFM at this time).

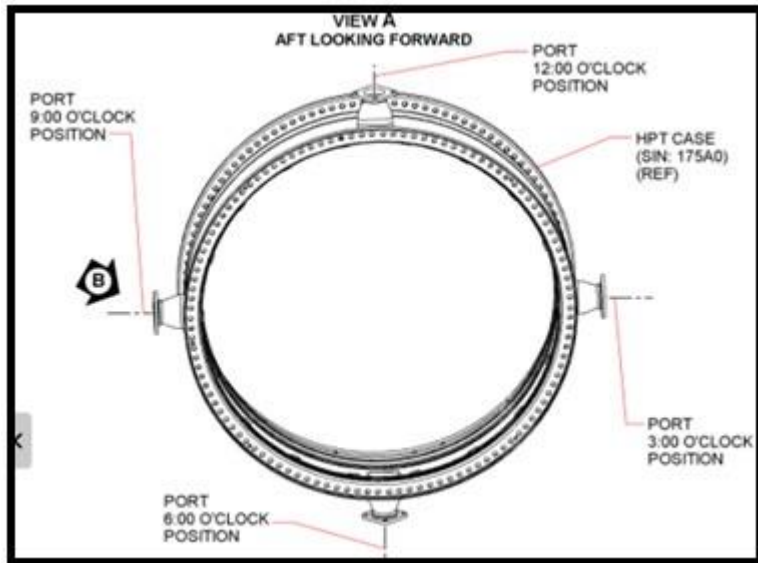
BAW would strongly recommend that the AD identifies the affected HPT Case Ports AND their parent HPT Case serial number (tracked item), to ensure parts can be more easily identified on the records usually provided with an engine (i.e. the tracked/life limited parts list).

BAW would welcome any additional feedback/comments on this topic.

HPT Case with cast ports (brazed/welded) – item is tracked by HPT Case S/N.

Port serial numbers are not identified on the records provided to operators.





EASA response:

Comment noted. EASA agrees. EASA has communicated this comment to CFM and requested CFM to use the information collected with SB LEAP-1A-72-00-0417-01A-930A-D for future updates of LEAP-1A-72-00-0421-01A-930A-D in order to facilitate the identification of the affected HPT cases. CFM also confirmed that HPT cases not listed in LEAP-1A-72-00-0417-01A-930A-D are assured to not contain an affected port casting. This information is used to amend the definition of a serviceable HPT case in the final AD.

Commenter 2: Safran Aircraft Engines – Flavien Raulet – 12/02/2021

Comment # 2

Following the release of EASA PAD 21-013, it seems that the serial numbers concerned are not HPT Cases S/N, but ports, welded on the HPT Cases concerned. This situation would result in shop in the systematic inspection of HPT Case according to SB 72-0421.

We noticed the SB 72-0421 is monitored with a concurrent SB 72-0417 application. This last mentioned SB 72-0417 lists certain HPT Case S/N.

Could we link HPT Cases Ports listed in SB 72-0421 and HPT Cases listed in SB 72-0417, in order to reduce the affected population to the S/N affected in SB 72-0417? If yes, this would be easier for us to identify affected parts in order to meet the SB 72-0421 requirements.



EASA response:

Comment noted. Refer to the answer to Comment 1 above.

Commenter 3: Lufthansa Technik AG – Florian Weinz – 23/02/2021
Comment # 3

I would like to request an additional statement in the final EASA AD, based on the EASA PAD 21-013:

Per PAD Definitions section a “serviceable part” is a not affected HPT case. An “affected HPT case” per the same Definitions section is a part having P/N 2668M94G01 and at least one HPT case port casting S/N listed in table 1 of the (P)AD.

The Required Actions section of the PAD states that from effective date of final AD only serviceable parts are allowed to be installed.

As generally known, during a shop visit of an engine, findings could lead to a disassembly of certain parts to get access to a damaged area. If a (P)AD-affected engine would be in shop for other reason, the HPT case (with P/N and S/N listed in Table 1) would need to be removed to get access to another damaged area, it would not be possible to reinstall this HPT case after this shop visit, even if the given limits of Table 1 are not reached for this part. As the HPT case is very expensive, around 218.000 USD, the following cost effects apply: given this value even for parts with the highest limits of Table 1 (13.000CSN), this results in cost of 16,77 USD per FC. Assuming a part needs to be replaced to get access only and has accumulated only 9000FC and has a limit of 13000FC per PAD Table 1, the lost life would be 4000FC equivalent to 67.000 USD.

Therefore LHT would like to request that a reinstallation of affected parts is considered to be acceptable in the final AD, as far as the limit per Table 1 is not yet reached and the part is serviceable per applicable Engine Shop Manual sections. Obviously the TC holder of the part did a risk assessment to determine the safe life of such affected parts and LHT would like to use the available cycles of this safe life within the technical limits already established.

A proposed change of the PAD could be to only change the definition of a “serviceable HPT case” to: “An HPT case which is not an affected HPT case or an affected HPT case which has not yet reached the compliance time given in Table 1 below.”

If there are other technical reason why this is not possible, at least LHT would like to ask that the final AD will clearly state that such re-installations are not possible. An answer which clarifies why these re-installations are not possible would be much appreciated. This will avoid any future questions from other operators and shops.



EASA response:

Comment noted. EASA partially agrees. Removal of an HPT case from an engine and reinstallation of that HPT case on the same engine during a single maintenance visit does not constitute 'install' as specified in paragraph (2) of the AD. Note 2 has been added to the final AD based on this comment.

Commenter 4: Alaska Airlines – Rob Northcote – 28/02/2021
Comment # 4

Alaska Airlines Propulsion Engineering team has the following comments to the subject PAD:

1. The Applicability should be limited to those HPT Case S/Ns contained in SB 72-0417 as that is the population of HPT Cases that may have one of the 8 port S/Ns in SB 72-0421.
As it stands now, with the EASA PAD as written, all HPT Cases are suspect but this is known not to be the case through the limitation of the unknown port S/N population in SB 72-0417.
2. The EASA PAD should not include the paragraph about part installation as if an engine, that has an affected part installed, is removed from wing and goes to an engine shop and the case is removed for access, that case just needs to be replaced by the time limits in the Replacement paragraph in the AD, not upon removal from the engine.

EASA response:

1. **Comment noted. Refer to the answer to Comment 1 above.**
2. **Comment noted. Refer to the answer to Comment 3 above.**

