



EASA Safety Information Bulletin

SIB No.: 2010-14
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- Subject:** Installation of Unapproved Carbon Brake Heat Packs
- Ref. Publication:** None.
- Applicability:** All (JAR, FAR, CS) Part 25 transport category aeroplanes equipped with carbon brakes.
- Description:** This SIB is issued to advise transport aeroplane owners, operators and maintenance personnel of an airworthiness concern affecting carbon brake assemblies which have been modified through the installation of replacement heat packs. Consequently, the affected brake assemblies no longer meet the certification specifications.
- Only the holder of a European Technical Standard Order Authorisation (ETSOA) or equivalent approval, according to EC 1702/2003, Part 21A.611, which is usually the original equipment manufacturer (OEM), is permitted to design changes to the ETSO equipment. Brake assemblies with unapproved replacement heat packs should no longer bear the ETSO marking. Alternative brake assemblies or brake heat packs can only be approved for installation through an approved Major Change of the original Type Design, which can be obtained from the aeroplane Type Certificate (TC) holder, or through a Supplemental Type Certificate (STC) modification to the aeroplane type design.
- The installation of unapproved replacement heat packs may produce unknown effects on the aeroplane on which they are installed. Loss of one brake during a rejected take off operation could result in reduced control of the aeroplane. However, at this time, there is insufficient information to indicate that this concern constitutes an unsafe condition that would warrant Airworthiness Directive (AD) action.
- Background:** Successful brake development and testing compliant with the Airworthiness Requirements in ETSO C135 is necessary to ensure the proper qualification of the brake equipment.
- Moreover, paragraph 2.2.2.2 of ETSO C135 clearly states that *“The existence of ETSO approval of the article displaying the required marking does not automatically constitute the authority to install and use the article on an aeroplane. The conditions and tests required for ETSO approval of this article are minimum performance standards. It is the responsibility of those desiring to install this article either on or within a specific type or class of aeroplane to determine that the aeroplane operating conditions*
- This is information only. Recommendations are not mandatory.

are within the ETSO standards. The article may be installed only if further evaluation by the user/installer documents an acceptable installation and the installation is approved by the Agency“.

This evaluation must include verification of the brake integration on the aeroplane which is necessary to ensure the correct functioning of the braking equipment within the aeroplane environment. This involves investigations into the interaction of the brake with aeroplane systems such as anti-skid, brake temperature indication (if fitted) and the landing gear extension/retraction system. It also involves investigation into the behaviour of the brake in relation to (e.g.) the thermal characteristics of the landing gear axle, the vibration input to the airframe and the response of the structure to the brake torque profile.

Note: A similar issue was highlighted in EASA Safety Information No. 2006-03, which applies to a particular brake type.

Recommendation: Apart from reiterating the fact that these critical unapproved parts should not be installed on aeroplanes, EASA recommends the following actions:

- Review the technical logs of the aeroplane to determine the history of heat pack repair and/or replacement.
- During each landing gear wheel removal, check that part numbers on the heat packs in brake assemblies conform to the approved design standard.
- This should be done by referring to the Aircraft Maintenance Manual Section or Illustrated Parts Catalogue provided by the TC holder, or the Component Maintenance Manual provided by the ETSOA holder, or (documentary) information provided by the STC holder, as applicable.
- Unapproved parts should be removed and quarantined to prevent installation until a determination can be made regarding their eligibility for installation.
- The OEM (ETSOA holder) and EASA should be notified of any findings of unapproved parts.

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