U.S. Department
of Transportation

Federal Aviation Administration

Airworthiness Concern Sheet

Date: July 8, 2020

Reply to:
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Department: FAA
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Make: Continental Aerospace Technologies, Inc.
Model / Series: O-470-K, -L, -M, -R, -S & -U converted to O-470-50 via STC SE4985NM
Serial Numbers: All Serial Numbers

Reason for Airworthiness Concern: Continental Aerospace Technologies, Inc. was made aware of an engine that lost power, while in flight, with the pilot smelling smoke in the cockpit, resulting in the pilot conducting a forced landing with no injuries. The investigation found that the modified Continental O-470 engine's crankshaft was fractured between the #5 and #6 cylinders. The engine was originally an O-470 that underwent a conversion via STC SE4985NM, to increase the engine displacement, and STC SE10233SC, to install a supercharger. The crankshaft, which was ground down for reuse and inspected in October 2018, was an Airmelt model (pre-Vacuum Arc Remelt (VAR)) that was not designed to be used on the bigger bore engines (due to the greater strains encountered on those engines, as addressed by Continental CSB96-8 and MSB96-10B). The FAA is concerned that the Airmelt crankshafts are being improperly used in these converted O-470 engine models (renamed O-470-50 as specified it STC SE4985NM), and we would like to gather data to better understand the overall impact on the flying public.

Federal Aviation Administration (FAA) Description of Airworthiness Concern

Request for Information

The FAA is requesting the following information from owners and operators of the Continental Aerospace Technologies, Inc. engine models O-470-K, -L, -M, -R, -S & -U that have been converted into an O-470-50 engine model using STC SE4985NM:

1) Have you installed STC SE4985NM to convert your O-470-K, -L, -M, -R, -S & -U engine into an O-470-50 by increasing the engine displacement?

2) If the answer to question one was 'Yes', have you also installed STC SE10233SC to install a Belt-Driven Vortech V-1S supercharger assembly on the same Continental engine (either before or after STC SE4985NM was installed)? Or any other engine-related STC's in addition to STC SE4985NM?

3) If you have an engine with either STC SE4985NM, SE10233SC or both installed, please confirm whether your crankshaft was manufactured using the Airmelt process or the Vacuum Arc Remelt (VAR) forging process (please refer to CSB96-8 for guidance on how to identify your type of crankshaft). If you do not know which process was used for your crankshaft and are unable to determine it, please respond to this question with 'Unknown'.

This Airworthiness Concern Sheet (ACS) is intended as a means for FAA Aviation Safety Engineers to coordinate airworthiness concerns with aircraft owners/operators through associations and type clubs. At this time, the FAA has not made a determination on what type of corrective action (if any) should be taken. The resolution of this airworthiness concern could involve Airworthiness Directive (AD) action or a Special Airworthiness Information Bulletin (SAIB), or the FAA could determine that no action is needed at this time. The FAA's final determination will depend in part on the information received in response to this ACS.

The FAA endorses dissemination of this technical information to all manufacturers and requests association and type club

comments.		
Attachments: __ Service Difficulty Report __ Accident/Incident Data System X Service Letter / Bulletin __ Special Airworthiness Information Bulletin __ Federal Aviation Administration or National Transportation Safety Board Safety Recommendation __ Airworthiness Directive __ Alternate Means of Compliance __ Risk Analysis X Other: ACS Response Sheet	**Transmittal:** X Federal Aviation Administration (FSDO) X Airplane Owners and Pilots Association X Experimental Aircraft Association X Type Club __ Type Certificate Holder __ Other:	**Response Requested By:** __ Emergency (10 days) X Alert (30 days) __ Information (90 days)

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Airworthiness Concern Sheet
Response Sheet

Date:

Reply from:
Name:

Affiliation:

Contact Information:

Engine Make: Continental Aerospace Technologies, Inc.

Engine Model/Series:

Serial Number:

Airworthiness Concern Sheet (ACS) Response

1) Have you installed STC SE4985NM to convert your O-470-K, -L, -M, -R, -S & -U engine into an O-470-50 by increasing the engine displacement?

2) If the answer to question one was 'Yes', have you also installed STC SE10233SC to install a Belt-Driven Vortech V-1S supercharger assembly on the same Continental engine (either before or after STC SE4985NM was installed)? Or any other engine-related STC's in addition to STC SE4985NM?

3) If you have an engine with either STC SE4985NM, SE10233SC or both installed, please confirm whether your crankshaft was manufactured using the Airmelt process or the Vacuum Arc Remelt (VAR) forging process(please refer to CSB96-8 for guidance on how to identify your type of crankshaft). If you do not know which process was used for your crankshaft and are unable to determine it, please respond to this question with ‘Unknown’.