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SERVICE INFORMATION LETTER

Delayed Light-off (Booming) Starts on AS907 Engine Models

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Transmittal Information

Publication Number D201204000044

Summary

This revision is a FULL replacement. This revision includes the changes that follow:

- Added the engine models to the service information letter title.
- Changed effectivity to cover all AS907 engine models.
- Changed the content and format to agree with Honeywell processes in effect at the time of the release of this revision.

Revision History

This service information letter has had one revision(s) as shown in Table 1.

Table 1. Revision History

Revision Number	Revision Date
0	15 May 2012
1	1 Aug 2016

1. General Information

A. Effectivity

(1) This service information letter applies to all AS907 engine models.

B. Reason

(1) This service information letter discusses delayed light-off (booming) starts.

C. References

(1) Honeywell Operator Information Wires AS907-2009-OIW-032 and AS907-2009-OIW-035.

D. Summary

(1) Some operators of the AS907 turbofan aircraft engines have reported delayed light-offs, which result in an audible “boom”. Typically, the delayed light-off will occur when the engine itself is at or near ambient conditions and the ambient temperatures are cool to cold. The issue tends to disappear when ambient temperatures increase.

(a) Honeywell conducted an extensive investigation of this phenomenon from 2008 to 2010. The investigation included evaluation of the fuel, ignition, electronic control unit (ECU), air turbine starter (ATS), and combustion systems. No root cause for the occasional delayed light-off (booming) start was discovered. However, other engines which utilize an air-blast type of fuel nozzle for starting have reportedly experienced similar start phenomena.

(b) In late 2010, as the development of the improved combustor, PN 3034088-4, was well underway, the active investigation of the delayed light-off (booming) start phenomenon was placed on hold.

NOTE: The intent was to understand if and how the improved combustor would impact the issue. Please note that development of the improved combustor was to address a combustor durability issue only. The redesign was not related to the delayed light-off issue.

(c) With the field introduction of the improved combustor, PN 3034088-4, in late 2011, a few delayed light-off (booming) starts have been reported. The conditions surrounding the delayed light-off (booming) start were similar to that which was previously reported. The engine itself was at or near ambient temperature with a cooler or cold outside air temperature (OAT).

(d) With the continued reports of delayed light-off (booming) starts on engines with both types of combustors, Honeywell is reviewing the investigation results obtained in the 2008-2010 time frame and are gathering additional ECU download data (EEI) in conjunction with current delayed light-off (booming) start events. The intent is to better understand the cause, which could lead to a corrective action or mitigation plan.

(2) In the meantime, the use of continuous ignition, as outlined in Operator Information Wire AS907-2009-OIW-035, is recommended. This document indicates operators can use continuous ignition during ground starting of the engines that are exhibiting

the delayed light-off (booming) starts. By using continuous ignition, the engine has demonstrated consistent starts without the audible boom.

(3) To perform an engine start using continuous ignition, set the ignition switch on the start control panel to ON (continuous ignition) immediately before initiating a normal engine start. After the engine has successfully reached idle speed, it is important to turn the ignition switch to the OFF position.

(4) After completing 10 successful continuous ignition starts, it is recommended to perform a minimum of 4 normal auto starts before returning to continuous ignition. This will allow the full authority digital electronic control (FADEC) system to perform the necessary checks of the ignition system to ensure both channels of ignition are operating properly. During continuous ignition, the FADEC is unable to perform these checks.