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SERVICE INFORMATION LETTER

APPLICABLE:



MAINTENANCE



FLIGHT

& ENGINEERING

OPERATIONS

FOR ALL AIRFRAME MANUFACTURERS USING
GENERAL AVIATION, GENERAL PRODUCTS
AND/OR AUXILIARY POWER UNITS,
OWNER/OPERATORS, DISTRIBUTORS, SALES
AND SERVICE ORGANIZATIONS, AND FIELD
SERVICE REPRESENTATIVES.

AIRBORNE AUXILIARY POWER – GAS TURBINE ENGINE – RE220GX APU Auto Shutdown in Heavy Rain

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Transmittal Information

This sheet transmits Revision Number 1 to Service Information Letter (SIL) No. APU-87

Revision History

Service Information Letter (SIL) No. APU-87 has had one (1) revision as summarized in Table 1.

Table 1. Service Information Letter Revisions

Revision	Date of Release
Initial Release	22 July 2004
1	19 Jun 2009

Revision 1 to Service Information Letter (SIL) No. APU-87 contains these changes:

Section/Page	Description of Change
Page 1	Revised format, date. Moved the Subject information to Page 1.
Page 2	Revised format, date.
Page 3	Added revision information, List of Effective Pages.
Page 4	Revised format; Subject statement and Summary Statement updates. Added page at Revision 1.
Page 5	Added Actions; added page at Revision 1.
Page 6	Added Actions; added page at Revision 1.

List of Effective Pages

Page Number	Date
1	19 Jun 2009
2	19 Jun 2009
3	19 Jun 2009
4	19 Jun 2009
5	19 Jun 2009
6	19 Jun 1009

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1. **General Information:**

Subject:

The purpose of this Service Information Letter is to advise the field of a temporary solution to reduce auto shutdown during heavy rain incidents for the WE3876352-1 and WE3876352-2 thermocouples.

Applicability:

Applicable to all Honeywell RE220[GX] Auxiliary Power Units (APUs)

2. **Background:**

Operators of Global Express have reported uncommanded APU shutdowns of RE220GX APU during incidents of heavy rain. The following advisory messages are shown on the EICAS system when the APU is being operated in heavy rain condition.

“APU FAULT” is shown on the EICAS when failure of one EGT thermocouple probe fails (the APU does not shutdown). In this condition CAIMS reports faults “SHORT – EGT SENSOR/CIRCUIT 1 WIRING” fault code 4960150APU, or “SHORT – EGT SENSOR/CIRCUIT 2 WIRING” fault code 4960155APU.

“APU SHUTDOWN” is shown on the EICAS when both EGT thermocouple probes have failed and an APU protective shutdown has occurred. In this condition CAIMS reports fault “NO DATA –EGT SENSOR [CKT 1 & 2] WIRING”, fault code 4960126APU. “APU SHUTDOWN” due to loss of EGT will occur only while the aircraft is on the ground. If both EGT probes fail in flight, a caution message “APU EGT SENSORS” will be shown on the EICAS and the APU can be started and operated if necessary.

After an “APU SHUTDOWN” caused by loss of both EGT probes, the EGT indications will default to “amber dashes” on the EICAS APU Synoptic Display. Normal EGT indication will resume when the EGT probes have dried.

3. **Summary:**

The EGT probes installed on the RE220GX APU are Alumel / Chromel devices with mounting posts for ring terminal attachment. Between the mounting posts and the body of the probe, is a ceramic isolator. Preliminary testing has indicated that when wet, during heavy rain events or high humidity, thermocouple P/N WE3876352-1 has a ground path from either the Chromel or Alumel post across the ceramic isolator, to the APU case.

Operation in the field indicate that some WE3876352-2 thermocouples with cracked coatings or incomplete coverage coating provide the same ground path and “APU FAULT” as with the WE3876352-1 units.

Operators have successfully used the following method for sealing the unit thermocouple, Part Number WE3876352-1, to prevent shutdowns during heavy rain events. Revision 1 of this document temporarily permits the use of this same process for unit thermocouple Part Number WE3876352-2.

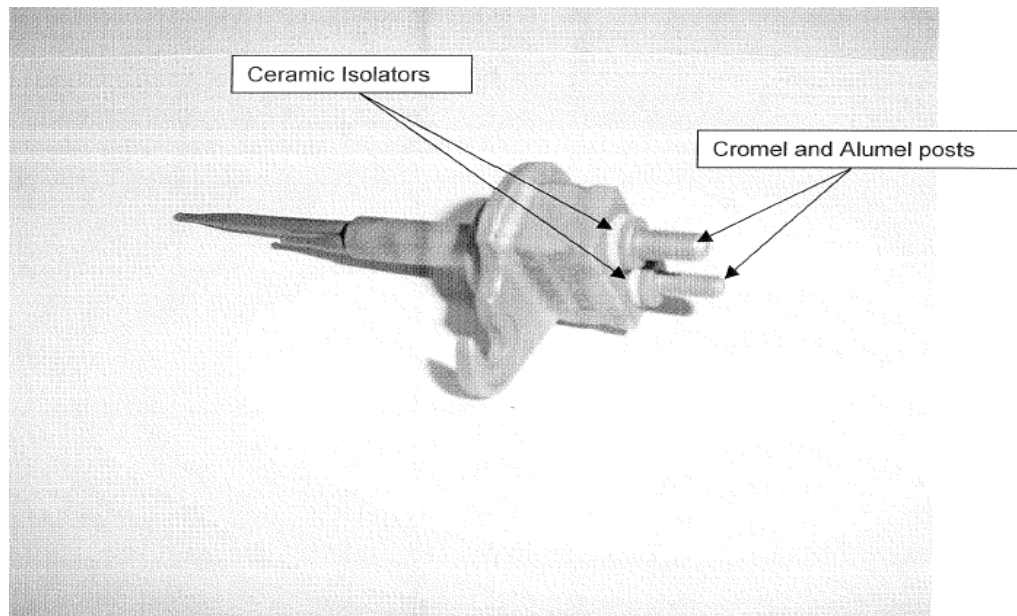
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4. **Actions:**

- (a) Remove the APU thermocouple from the APU per the AMM.
- (b) Clean the thermocouple by wiping with acetone or isopropyl alcohol until wipe cloth remains clean. Air-dry thermocouple. Do not saturate the ceramic isolators with solvent. Do not apply sealant until thermocouple is dry.
- (c) Apply a coating of Dow Corning RTV 736 to the upper area of the thermocouple. Apply so that the ceramic isolator is covered and the posts are covered to the post shoulder. Do not apply to the contact surface of the post shoulder. See Figure 2. Follow Dow Corning instructions for application of the sealant.



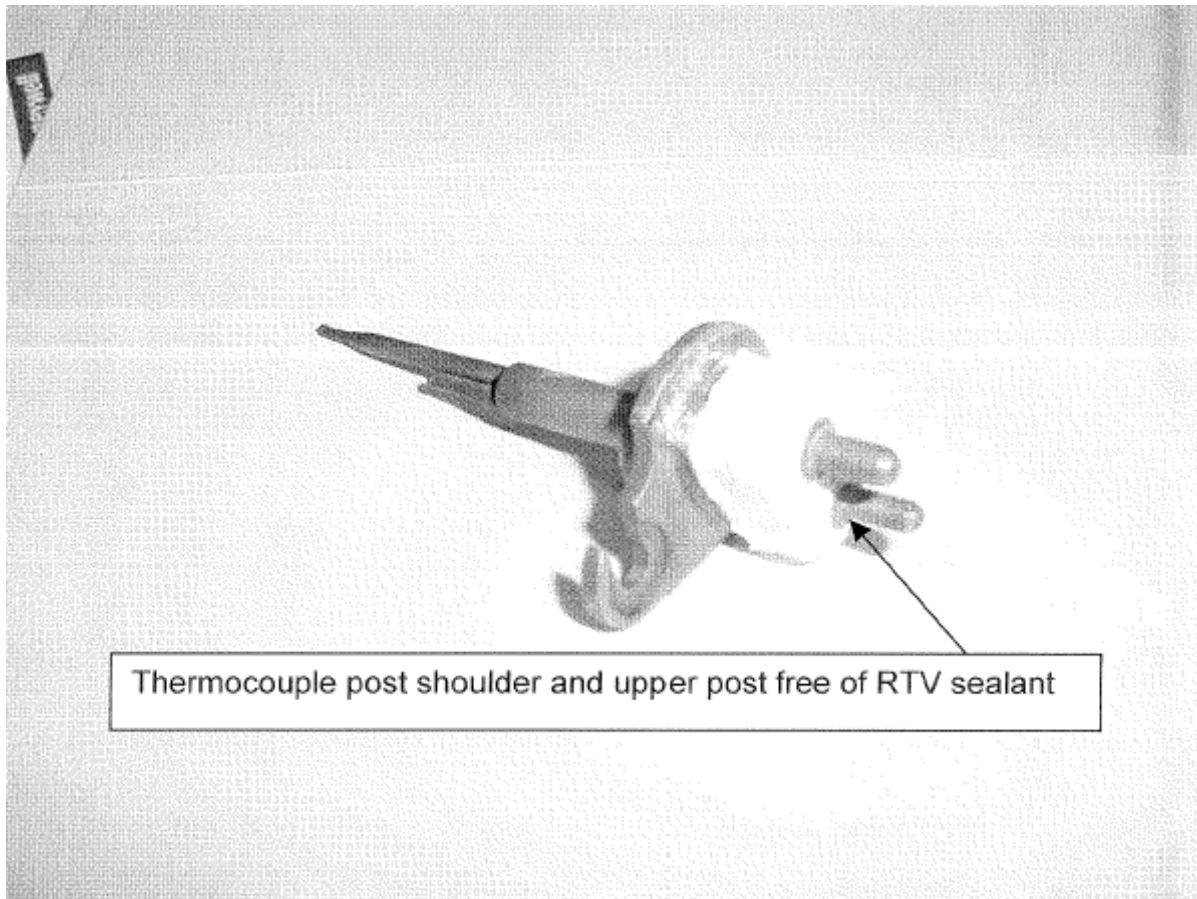
- (d) Apply a uniform thickness of RTV sealant approximately 1/16 inch thick.
- (e) Cure the RTV per the manufacturer instructions. Do not accelerate the cure time beyond manufacturer's instructions.

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- (f) Install the thermocouple and verify operation per AMM instructions.



Dow Corning 736 Sealant was selected for its improved resistance to temperature. This product may be less resistant to APU oil and fuel. This sealant should support the thermocouple operating temperatures.

Product support information and instructions for use for Dow Corning 736 can be found at:
<http://www.dryfilmlubricants.com/pdf/736.pdf>.

Honeywell is currently reviewing the coating process of the WE3876352-2 thermocouples to determine possible causes of the cracking and incomplete coverage of the coating and identify a method to preclude future problems.

If there are any questions regarding this SIL, then please contact:

Honeywell Technical Operations Center:

Phone: 1-800-601-3099 (U.S.) or 1-602-365-3099 (International)

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