

# Honeywell

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## SERVICE BULLETIN

**AIRBORNE AUXILIARY POWER - GAS TURBINE ENGINE - Visual Inspection and Sealant Application Method for the Exhaust Gas Temperature (EGT) Sensor, PN WE3876352-1, -2, on RE220 Auxiliary Power Units (APUs)**

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Revision 3, 26 Jun 2017

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## Transmittal Information

ATA Number RE220-49-8169 (Publication Number D201504000052)

### Summary

The equipment changed in the revision(s) before this revision do not need any additional changes.

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

- Changed service bulletin title for visual inspection.
- Added material and reference for RTV primer.
- Added procedures for inspection, cleaning and re-application.
- Added repair facility reference.
- Changed the content and format to agree with Honeywell processes in effect at the time of the release of this revision.

The information that is identified with revision bars is listed in the Revision History section. Revision bars are not used before Paragraph 1.A. The editorial changes and information that was moved, removed, or reformatted are not identified with revision bars.

Refer to Paragraph 4.A. for a list of the acronyms and abbreviations used in this service bulletin.

### Revision History

This service bulletin has had three revision(s) as shown in Table 1.

**Table 1. Revision History**

Revision Number	Revision Date
0	10 Jun 2015
1	12 Dec 2016
2	10 Jan 2017
3	26 Jun 2017

### Highlights

This section issues Revision 3 to Service Bulletin, ATA Number RE220-49-8169 (Publication Number D201504000052), and contains these changes:

The list of highlights tells the users about the changes that the revision makes. The list has three columns. The "Page" column shows the block of data that the revision changes and the page on which the block begins. The block can be a section, subsection, graphic, table, etc. Revision marks give the location of the change in the block. The "Description" column tells the user about the change or changes in each block. A paragraph, table, or figure reference often comes before the description. The "Effectivity" column tells the user about the part number(s) to which the block of information applies. The default value for this column is "All." "All" means that the block applies to all parts.

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Page	Description	Effectivity
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Page	Description	Effectivity
9	Paragraph 1.A.(1). Changed referenced serial number and added 5000GVFD to application in Table 2.	All
9	Paragraph 1.C.(2).(a). Changed Operators of Global Express to Operators of Global aircrafts.	All
10	Paragraph 1.C.(2).(c). Added step that this service bulletin supersedes SIL-87 and previous revisions.	All
10	Paragraph 1.C.(4).(a). Added information for benefits.	All
10	Paragraph 1.C.(5).(a). Added information for visual inspection and to cure RTV.	All
10	Paragraph 1.D.(1). Changed to add references to the specific accomplishment instructions.	All
10	Paragraph 1.E.(1). Added or at the operator's convenience to the compliance statement.	All
11	Paragraph 1.K.(1).(b). Added NOTE for AMM information.	All
12	Paragraph 2.A.(1). Changed from parts to materials and parts.	All
12	Paragraph 2.B.(1). Changed information for when units are returned to Honeywell authorized heavy repair facilities.	All
12	Paragraph 2.B.(1). Added reference to additional repair facility.	All
13	Paragraph 2.B.(2). Added information for claim submittal.	All
13	Paragraph 2.C.(1). Added primer, RTV to Table 4.	All
14	Paragraph 2.F.(1). Added tooling and NOTE.	All
15	Paragraph 3.B. Added the Inspection procedures.	All
15	Paragraph 3.C. Added the Cleaning and Re-application of RTV Sealant procedures.	All
16	Paragraph 3.D. Added Part C to task title and changed the reference in NOTE.	All
16	Paragraph 3.D.(2).(c). Changed the baking temperature, time, and prevention statement.	All
16	Paragraph 3.D.(3). Added reference to RTV PR-1200 primer in NOTE.	All
16	Paragraph 3.D.(4). Added step to apply RTV PR-1200 primer.	All
16	Paragraph 3.D.(5). Added step to cure primer.	All
16	Paragraph 3.D.(6).(a). Added reference to RTV PR-1200 primer.	All
16	Paragraph 3.D.(7). Added step to inspect RTV sealant.	All
18	Paragraph 3.D.(8). Added reference information.	All
18	Paragraph 3.D.(9). Added second NOTE to reference Figure 2.	All
19	Figure 2. Added figure for proper RTV sealant application.	All

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Page	Description	Effectivity
19	Paragraph 3.D.(11). Deleted information to email.	All
20	Paragraph 4.A of APPENDIX A. Added terms to Table 6. Acronyms and Abbreviations.	All
21	Paragraph 4.B. Changed title for Appendix B.	All
21	Figure 3. Changed information and the title for Figure 3.	All

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**1. Planning Information**

**A. Effectivity**

- (1) This service bulletin is applicable to the component(s) given in Table 2.

**Table 2. Applicable Component(s)**

PN	Engine Model Number	Serial Number	Application
WE3800714-1	RE220[GX]	P-101 to P-177 (except P-157) if SB 49-7558 has been incorporated. P-157, P-178 to P-845 <sup>1</sup>	Bombardier Global Express, 5000, 5000GVFD, 6000, XRS

NOTE:

1. First Unit Production Point.

**B. Concurrent Requirements**

- (1) Not applicable.

**C. Reason**

(1) **Problem**

- (a) Global operators have reported auto shutdowns on the RE220[GX] APU and failures on EGT sensors, PN WE3876352-1, -2.

(2) **Background**

- (a) Operators of Global aircrafts have reported uncommanded APU shutdowns of the RE220[GX] APU during incidents of heavy rain. The advisory messages that follow are shown on the EICAS when the APU is operated in heavy rain conditions.

- 1 "APU FAULT" is shown on the EICAS when one EGT thermocouple probe fails and the APU does not shutdown. In this condition, the CAIMS reports faults "SHORT-EGT SENSOR/CIRCUIT 1 WIRING", fault code 4960150APU or "SHORT-EGT SENSOR/CIRCUIT 2 WIRING", fault code 4960155APU.
- 2 "APU SHUTDOWN" is shown on the EICAS when the two EGT thermocouple probes have failed and an APU protective shutdown has occurred. In this condition the CAIMS reports faults "NO DATA-EGT SENSOR [CKT 1&2] WIRING", fault code 4960126APU.
- 3 "APU SHUTDOWN" because of loss of EGT will occur only while the aircraft is on the ground. If the two EGT probes fail in flight, a caution message "APU EGT SENSORS" is shown on the EICAS and the APU can be started and operated if necessary.
- 4 After an "APU SHUTDOWN" caused by the loss of two EGT probes, the EGT indications will default to "amber dashes" on the EICAS APU synoptic display. Normal EGT indications will continue when the EGT probes have dried.

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- (b) Tests done at Honeywell have shown the failure to be a conductive path from the thermocouple circuit to the grounded EGT chassis. This conductive path creates a condition where the ECU senses and shows a STG fault.
- (c) This service bulletin revision supersedes SIL-87 and prior revisions of this service bulletin, which are no longer available.
- (3) **Technical Validation**
  - (a) This design was validated with test(s) at Honeywell.
- (4) **Benefits**
  - (a) RTV sealant application improves water resistance of the EGT sensors.
- (5) **Action**
  - (a) Perform a visual inspection of the EGT probes. If required, apply RTV sealant to cover the EGT sensor, terminal lugs, wiring harness and insulation material. Allow RTV sealant to fully cure per manufacturer instructions (reference only - 24 hours minimum).

### D. Description

- (1) This service bulletin provides accomplishment instructions divided in the following sections:
  - Paragraph 3.A. This section provides general information necessary to comply with this service bulletin.
  - Paragraph 3.B. This section gives instructions for inspection of the APU relative to compliance with superseded SIL-87 or with previous revisions of Service Bulletin RE220-49-8169. If compliant with any, additional instructions are given to visually inspect the RTV sealant coverage on the EGT sensors and adjacent wiring harness leads, terminal lugs and insulation material.
  - Paragraph 3.C. This section gives instructions to clean existing RTV sealant on the EGT sensors in order to apply additional sealant to ensure proper coverage of the EGT sensors and adjacent wiring harness leads, terminal lugs and insulation material.
  - Paragraph 3.D. This section gives instructions for the initial RTV sealant application on non-coated EGT sensors and the adjacent wiring harness leads, terminal lugs, and insulation material.

### E. Compliance

- (1) This service bulletin, recommended by Honeywell, is done at the next access to the parts or at the operator's convenience.

### F. Approval

- (1) The TSO approval was received for the changes identified in this service bulletin.

### G. Manpower

- (1) No additional manhours are necessary when this service bulletin is done at overhaul (or) at access to the part.

### H. Weight and Balance

- (1) None.

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**I. Electrical Load Data**

(1) Not changed.

**J. Software Accomplishment Summary**

(1) Not applicable.

**K. References**

(1) Publications.

(a) The Honeywell publication(s) used to do this service bulletin is/are given in Table 3.

(b) If being performed on-wing, the applicable Bombardier Global AMMs should be used to do this service bulletin.

NOTE: Refer to the following sections in Bombardier Global AMMs:

- Removal of EGT sensors 49-61-05-000-801
- Installation of EGT sensors 49-61-05-400-801.

**Table 3. Honeywell Publication(s)**

Outline PN	Component Maintenance Manual		Illustrated Parts Catalog	
	ATA Number	Revision	ATA Number	Revision
WE3800714-1	49-24-35	6	49-24-25	6

NOTE: Unless specified differently, you can use subsequent revisions.

**L. Other Publications Affected**

(1) The same as the publication(s) given in Paragraph 1.K.(1).

**M. Interchangeability or Intermixability of Parts**

(1) This service bulletin does not have an effect on interchangeability or intermixability.

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### 2. Material Information

#### A. **Material - Price and Availability**

- (1) The materials and parts necessary for this service bulletin are available in Paragraph 2.C. of this service bulletin.

#### B. **Industry Support Information**

- (1) Units returned to Honeywell authorized heavy repair facilities at time of other repair/overhaul will have this service bulletin done at no-charge.

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(2) Submittal of claims as follows:

- If performing Paragraph 3.B. "Part A". Compliance with this section of the service bulletin at a Honeywell authorized line service center will be covered for up to 1 hour labor. Service centers will need to file a claim to receive coverage. Must include reference to Service Bulletin RE220-49-8169 in the claim.
- If performing Paragraph 3.C. "Part B". Compliance with this section of the service bulletin at a Honeywell authorized line service center will be covered for up to 2 hours labor and \$75.00 (USD) for material costs. Service centers will need to file a claim to receive coverage. Must include reference to Service Bulletin RE220-49-8169 in the claim.
- If performing Paragraph 3.D. "Part C". Compliance with this service bulletin at a Honeywell authorized line service center will be covered for up to 4 hours labor and \$75.00 (USD) for material costs. Service centers will need to file a claim to receive coverage. Must include reference to Service Bulletin RE220-49-8169 in the claim.

NOTE:

For warranty APUs - use code TRW  
MSP covered APUs - use code MSP  
T&M (non-MSP, out of warranty) - use code TRE.

NOTE: Claims may only be submitted for Paragraph 3.B., or Paragraphs 3.B. and 3.C., or Paragraphs 3.B. and 3.D. Claims may not be submitted for all three referenced sections.

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Aerospace Contact Team  
Telephone: 800-601-3099 (Toll Free U.S.A./Canada)  
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### C. Material Necessary for Each Engine

(1) Material(s) supplied by operator is/are given in Table 4.

NOTE: The materials given in Table 4 are the consumable products used in the modification of the unit.

**Table 4. Materials**

Number	Description	Source
<u>NOTE:</u> You can use equivalent alternative materials unless specified differently. The user must find equivalent alternatives.		
Dow Corning 736	sealant, RTV	commercially available
Dow Corning PR-1200 (Red)	primer, RTV	commercially available

### D. Material Necessary for Each Spare

(1) Not applicable.

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**E. Reidentified Parts**

(1) Not applicable.

**F. Tooling - Price and Availability**

(1) Refer to Table 5 for the tools necessary to do this service bulletin.

**Table 5. Tooling**

<b>Number</b>	<b>Description</b>	<b>Source</b>
Not applicable	Conventional oven with temperature capability of 390 to 410°F (199 to 210°C)	commercially available

NOTE: Oven temperature to be validated by a calibrated temperature gauge.

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### 3. Accomplishment Instructions

#### A. General Information

CAUTION: DO NOT USE MATERIALS THAT ARE NOT EQUIVALENT TO HONEYWELL-SPECIFIED MATERIALS. MATERIALS THAT ARE NOT EQUIVALENT CAN CAUSE DAMAGE TO THE EQUIPMENT AND CAN MAKE THE WARRANTY NOT APPLICABLE.

CAUTION: DO THESE PROCEDURES IN A CLEAN ENVIRONMENT TO PREVENT DAMAGE TO MECHANICAL COMPONENTS.

- (1) Obey the precautions.
- (2) The manual(s) given in Paragraph 1.K. of this service bulletin contain the removal, disassembly, cleaning, check, installation, assembly, and test instructions. This/These manual(s) must be used to complete this service bulletin.

#### B. Inspection - Part A

- (1) Visually inspect EGT sensors for existing RTV sealant coating.
  - If no RTV sealant, go to Paragraph 3.D. for RTV sealant application instructions to proceed.
  - If RTV sealant is present, visually inspect to insure proper RTV coverage per Paragraph 3.D.(6) in the RTV sealant application instructions and in accordance with Figure 1 and Figure 2.
- (2) Is RTV coverage compliant?
  - If Yes, complete the Service Bulletin Incorporation Sheet in Paragraph 4.B.
  - If No, go to Paragraph 3.C. for RTV sealant cleaning and re-application instructions to proceed.

#### C. Cleaning and Re-application of RTV Sealant - Part B

- (1) Clean existing RTV sealant surface with alcohol to remove any possible contaminants. Let dry completely.
- (2) Re-apply on top of existing RTV sealant a uniform coating of RTV 736 sealant, from one side of the flange on the EGT sensor up through the insulation in the wire harness to cover any voids in RTV sealant and to ensure proper coverage of EGT sensor and wiring harness per Figure 1 and Figure 2. Follow manufacturer instructions for application of RTV sealant.
- (3) Visually inspect to verify no gaps or voids present on RTV sealant. If any gaps or voids present, repeat Paragraph 3.C.(2), otherwise proceed.
- (4) Let the RTV 736 sealant cure in accordance with the manufacturer instructions. Do not decrease the cure time below the manufacturer instructions. (Reference only - 24 hours minimum.)

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- (5) Make sure the EGT sensors operate correctly. Refer to the manual given in Paragraph 1.K.(1).

NOTE: Dow Corning RTV 736 sealant was selected for its better resistance to temperature. This product supports the EGT sensor operation at temperature.

NOTE: Figure 2 shows a photo of a proper application of the RTV 736 sealant on a RE220[GX] APU.

- (6) Complete the Service Bulletin Incorporation Sheet in Paragraph 4.B.

### D. RTV Sealant Application - Part C

NOTE: If the EGT sensors are new and have not been fielded, go to Paragraph 3.D.(3).

- (1) Remove the EGT sensors from the APU. Refer to the manual given in Paragraph 1.K.(1).
- (2) Prevent external continuity between the leads and ground.
- (a) Clean the wire harness leads back to the insulation with a nonmetallic brush with soap and water. Rinse with distilled water or alcohol.
- (b) Clean the removed EGT sensors with a nonmetallic brush with soap and water. Rinse with distilled water or alcohol to remove any possible contaminants.
- (c) Dry the EGT sensors in an oven at 390 to 410°F (199 to 210°C) for 1 hour. This will prevent trapped moisture inside the EGT sensor casting and between the sensor and the RTV 736 sealant when applied.
- (d) Let the EGT sensors cool.
- (3) Install the EGT sensors in the APU. Refer to the manual given in Paragraph 1.K.(1).

NOTE: The RTV PR-1200 primer and the RTV 736 sealant must cover the EGT sensor, terminal lugs, wiring harness leads, and the insulation material in the marked area as shown in Figure 1 Sheet 1 and Sheet 2.

- (4) Apply a uniform coating of RTV PR-1200 primer (red) from one side of the flange on the EGT through the wire harness. Follow manufacturer instructions for application of primer.
- (5) Let the primer cure in accordance with manufacturer instructions. Do not decrease cure time below manufacturer instructions. (Reference only - 2 hours minimum).
- (6) Apply a uniform coating of RTV 736 sealant, 1/16 inch (1.587 mm) minimum thickness, from one side of the flange on the EGT sensor up through the insulation in the wire harness.
- (a) Follow the manufacturer instructions for application of the RTV PR-1200 primer and the RTV 736 sealant.
- (7) Visually inspect to verify no gaps or voids present on RTV sealant. If any gaps or voids present, repeat Paragraph 3.D.(6) otherwise proceed.

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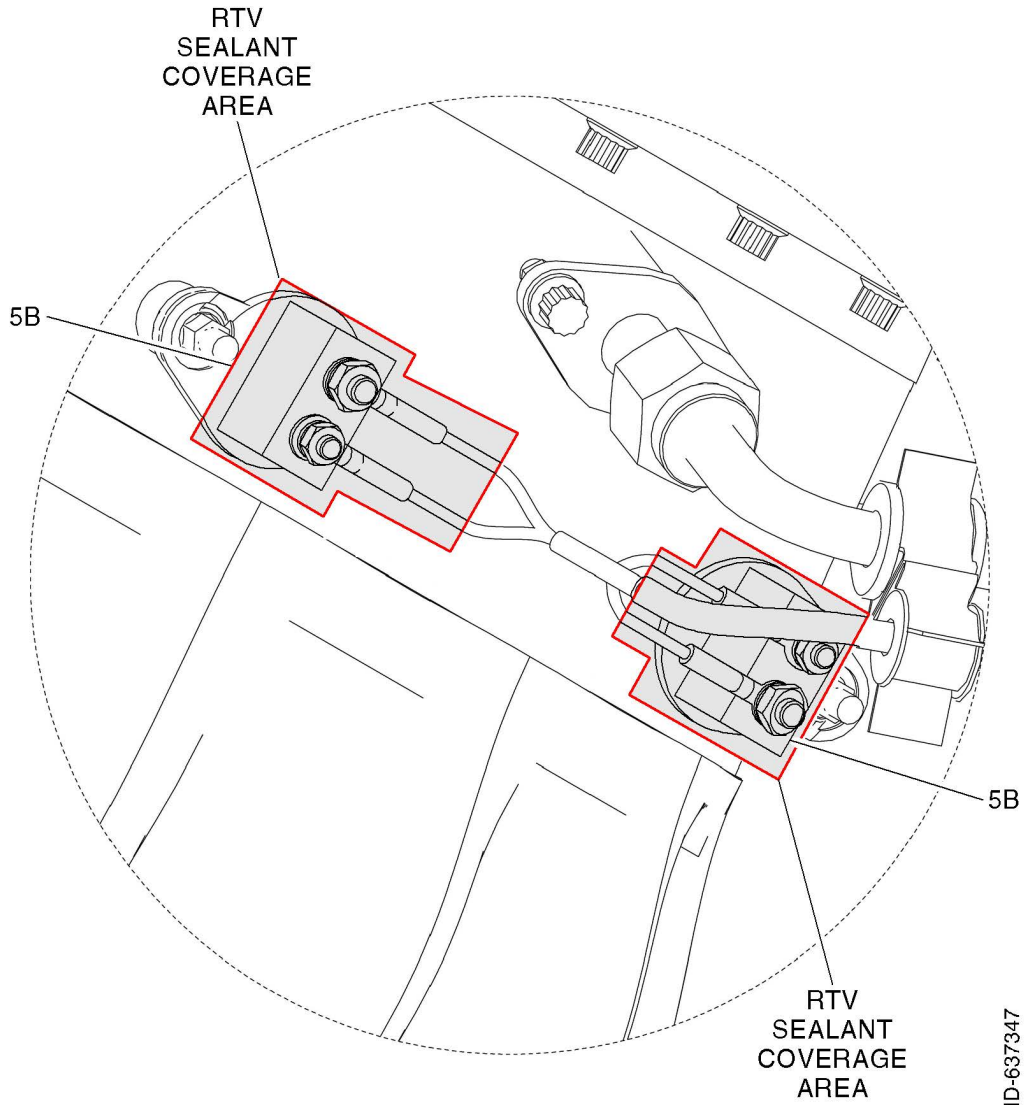


Figure 1. (Sheet 1 of 2) RTV Sealant Coverage on the EGT Sensor and Electrical Wiring Harness

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RE220

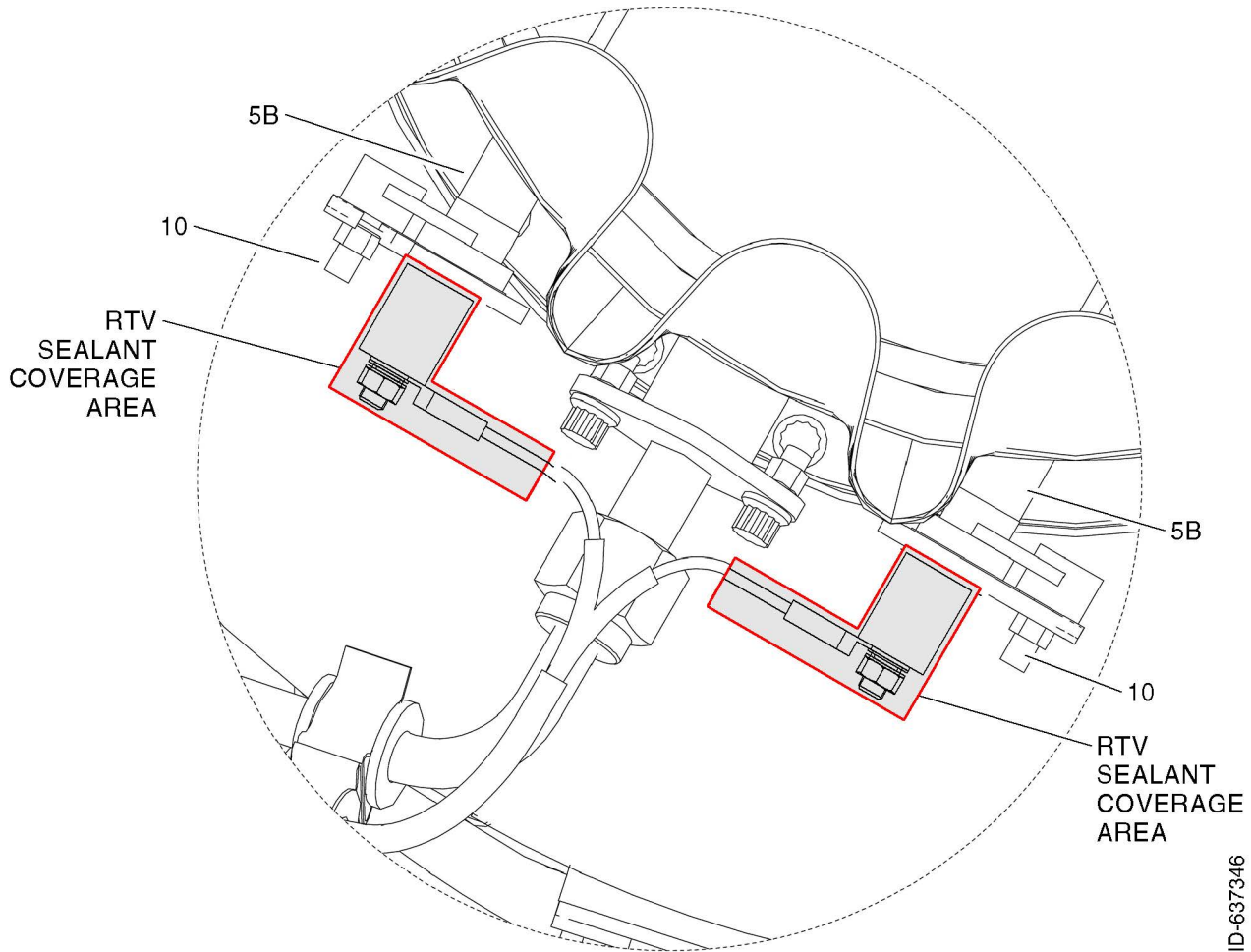


Figure 1. (Sheet 2 of 2) RTV Sealant Coverage on the EGT Sensor and Electrical Wiring Harness

### Key for Figure 1 (Sheet 2 of 2)

5B	EGT SENSOR	10	BOLT (REF)
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- (8) Let the RTV 736 sealant cure in accordance with the manufacturer instructions. Do not decrease the cure time below the manufacturer instructions. (Reference only - 24 hours minimum.)
- (9) Make sure the EGT sensors operate correctly. Refer to the manual given in Paragraph 1.K.(1).

**NOTE:** Dow Corning RTV 736 sealant was selected for its better resistance to temperature. This product supports the EGT sensor operation at temperature.

**NOTE:** Figure 2 shows a photo of a proper application of the RTV 736 sealant on a RE220[GX] APU.

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ID-630519

**Figure 2. (Sheet 1 of 1) Proper RTV Sealant Application on the EGT Sensor and Electrical Wiring Harness**

- (10) Make a record of the service bulletin number and/or revision number in the engine log book. Put the change number on the APU identification plate adjacent to the MOD RECORD. Refer to Table 6 for the applicable change number data.

**Table 6. Change Number Data**

PN	Model Number	Change Number
WE3800714-1	RE220[GX]	30

- (11) Complete the Service Bulletin Incorporation Sheet in Paragraph 4.B.

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#### 4. Appendix

##### A. Appendix A, Acronyms and Abbreviations

(1) Refer to Table 7 for a list of the acronyms and abbreviations used in this service bulletin.

**Table 7. Acronyms and Abbreviations**

Term	Full Term
AMM	aircraft maintenance manual
AOG	aircraft-on-ground
APU	auxiliary power unit
ATA	Air Transport Association
CAGE	commercial and government entity
CAIMS	central aircraft information/maintenance system
EGT	exhaust gas temperature
EICAS	engine instrumentation and crew alerting system
ECCN	Export Control Classification Number
ECU	electronic control unit
FAA	Federal Aviation Administration
mm	millimeter
MOD	modification
OSHA	Occupational Safety and Health Administration
PMA	Parts Manufacturer Approval
PN	part number
Qty	quantity
REF	reference
RTV	room temperature vulcanizing
SB	service bulletin
SFAR	Special Federal Aviation Regulation
SIL	service information letter
STG	short-to-ground
TSO	Technical Standard Order
°C	degree Celsius
°F	degree Fahrenheit

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**B. Appendix B, SB RE220-49-8169 Incorporation Sheet**

(1) RE220[GX] APU-EGT Probe, PN WE3876352-1, -2.

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### SERVICE BULLETIN INCORPORATION SHEET "RE220-49-8169"

<b>BOMBARDIER &amp; HONEYWELL SUBMISSION</b>	<p>Upon completion of the Service Bulletin, please fill-in and e-mail to Fracas at <a href="mailto:fracas.montreal@aero.bombardier.com">fracas.montreal@aero.bombardier.com</a> and to Honeywell at <a href="mailto:RSAPUProductSupportEngineering@Honeywell.com">RSAPUProductSupportEngineering@Honeywell.com</a></p> <p><b>If your aircraft is registered on CAMP and you are reporting to them, please do not send the incorporation sheet to Bombardier.</b> If your aircraft is on another tracking system, please contact Bombardier to make arrangements for automated data submission.</p>
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Service Bulletin Number	Rev.	* Parts Completed	COMPLIED WITH			Remarks/Reason
			YES	NO	N/A	
49-8169	_____	PART A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
49-8169	_____	PART B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
49-8169	_____	PART C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

**Actual hours to accomplish Service Bulletin:** \_\_\_\_\_

\* NOTES:

1. Where the Service Bulletin is divided into a number of parts (e.g., PARTS A, B, C, D, etc.) which can be carried out separately, indicate only those parts completed at this time.
2. For repetitive checks only the initial check should be reported unless otherwise stated in the Service Bulletin.
3. When more than one part is carried out at the same time, each part should be reported.

Aircraft Serial No. _____	Aircraft Reg. No. _____
Airframe Hours: _____	APU Hours: _____
S.B. Incorporation date _____ (dd/mm/yy)	Service Order No. _____
Facility Incorporating S.B. _____	
Name _____	Signature _____ Date _____ (dd/mm/yy)
<small>Signature not required if sent by E-Mail</small>	

ID-637348

**Figure 3. (Sheet 1 of 1) Service Bulletin Incorporation Sheet**