

T-103 Alert Service Bulletin

Subject:	Possible obstruction of nozzle cooling passages
Part Number(s):	E23031938 23031938 (Overhauled in accordance with FAA approved major repair # ART-1033)
Installation(s):	Rolls Royce 250-B17F, B17F/1, B17F/2, C20, C20B, C20C, C20F, C20J, C20S, C20W, C20R, C20R/1, C20R/2, C20R/4
Revision History:	Rev. IR: Initial Release Rev A: Removed serial number 100739 from affected serial number list. Rev B: Updated Timken to EXTEX Engineered Products.
NOTE: On 10-20-15, Timken Alcor Aerospace Technologies, Inc. (TAATI) was acquired by Kaman Corporation and renamed EXTEX Engineered Products, Inc.	
Reason:	Timken Alcor Aerospace Technologies, Inc. (TAATI) has identified a specific number of 2 nd stage turbine nozzle assemblies that may have residual casting ceramic core material obstructing (either partially or fully) the cast-in cooling passages. EEP design data permits a maximum of two (2) fully blocked passages. A 2 nd stage nozzle with more than two (2) obstructed passages may restrict the cooling air flow to the 1 st and 2 nd stage turbine wheels that could result in reduced operational life and/or possible premature turbine disk failure.
 WARNING	
Per Rolls-Royce the 1 st and 2 nd stage turbine wheels are life limited to a maximum of 1775 operating hours or 3000 cycles. Failure to follow the terms of this Alert Service Bulletin, and operating these wheels with reduced cooling, may result in premature turbine disk failure which in turn may cause an in-flight shutdown, creating risk of serious bodily injury or death.	
Description:	This service bulletin is intended to inform owners/operators about affected serial numbers and inspection instructions for the affected nozzles.
Applicability:	<p><u>Part Number E23031938 with the following S/N's:</u> 100625, 100626, 100632, 100633, 100680, 100683, 100686, 100687, 100688, 100689, 100691, 100692, 100693, 100694, 100695, 100696, 100697, 100730, 100731, 100732, 100733, 100734, 100735, 100738, 100741, 100742, 100743, 100745, 100747, 100748, 100749, 100814, 100818, 100820, 100821, 100823, 100885, 100889, 100890, 100893, 100903, 100904, 100905, 100917, 110104, MG3-C5873, MG3-C5839, 94H101, 94H125</p> <p><u>Part Number 23031938* with the following S/N's:</u> A942, RR003, X59059</p> <p>(*Overhauled in accordance with FAA approved major repair # ART-1033)</p>

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Accomplishment Instructions:

At the earlier of 120 operating hours or 6 months from issue date of this ASB, access the 2nd stage turbine nozzle such that the eight (8) cooling passages are visible and accessible (see figure 1). For proper disassembly of the turbine module to access the 2nd stage nozzle, refer to Rolls Royce C20 Series, Operation & Maintenance Manual, Publication No. 10W2, Section 72-50-00, "Turbine Section – Maintenance Practices".

Inspect each passage (ref. figure 1) using either a TAATI supplied tool or locally fabricated tool constructed from .005" shim stock. The recommended design is described in figure 2.

Insert the tool in each of the eight (8) cooling passages. In an open passage, the tool can be inserted without restriction until it contacts the sheet metal diaphragm at the nozzle I.D. The tool should be marked with a line signifying that it has been inserted to the proper depth (ref. figure 2). In addition to the marking, you can also determine that the tool is fully inserted by the sound and feel of the tool contacting the sheet metal detail.

Record information on TAATI supplied form which is attached to this ASB (see Appendix A). The enclosed form includes how many passages that the tool can and how many that cannot be fully inserted. Send the completed form to TAATI as part of complying with this ASB.

- **The tool can be fully inserted through 6 or more passages:**
No further action is required as the nozzle has two (2) or fewer obstructed passages.
- **The tool can be fully inserted through 5 or fewer passages:**
 1. Remove 2nd stage nozzle assembly along with 1st and 2nd stage turbine wheels.
 2. Contact TAATI representative to obtain Return Material Authorization (RMA) number.
 3. TAATI will inspect the 2nd stage nozzle to confirm the condition of the passages.
 4. If the nozzle is confirmed to have 3 or more obstructed passages, the 1st and 2nd stage turbine wheels are no longer serviceable and must not be re-installed.

TAATI will remove the nozzle diaphragm, remove any material from the obstructed passages and repair in accordance with Extex Overhaul Services (TOS) FAA Approved major repair # ART-1033.

5. If the nozzle is determined to have 2 or fewer obstructed passages, TAATI will return the nozzle to the customer and no further action is required.

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Approval:	This document is FAA approved.
Notes:	Please contact your TAATI representative with any questions.

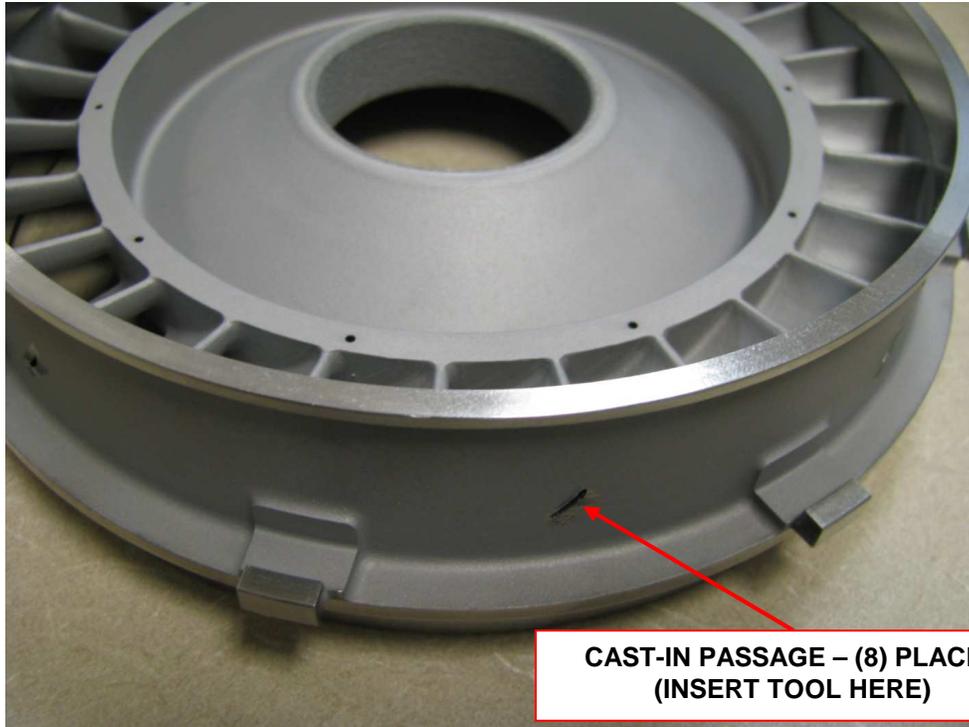


FIGURE 1
(2ND STAGE NOZZLE ASSY)

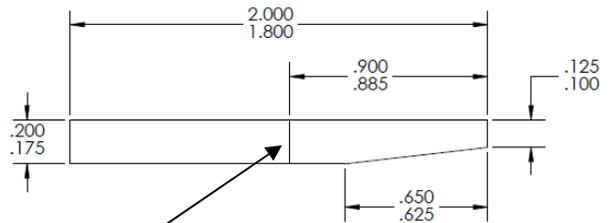
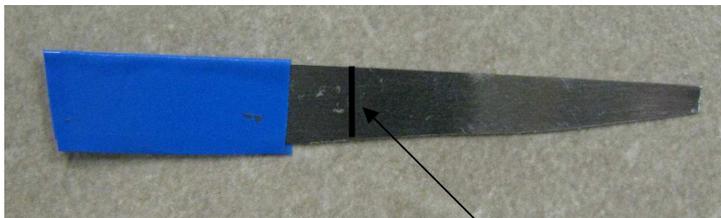


FIGURE 2
(INSPECTION TOOL - .005" THICK SHIM STOCK)

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APPENDIX A

COOLING PASSAGE INSPECTION FORM

Customer:			
Nozzle Part No.:		Nozzle Serial No.:	
TSN (Nozzle):		CSN (Nozzle):	
Number of Obstructed Passages:		Number of Open Passages:	
If more than 2 obstructed passages complete the information below			
1 st Stage Turbine (T1) Wheel Part Number:		T1 Serial No.	
TSN (T1 Wheel)		CSN (T1 Wheel)	
2 nd Stage Turbine (T2) Wheel Part Number:		T2 Serial No.	
TSN (T2 Wheel)		CSN (T2 Wheel)	
Inspected By (Signature):			Date:

Return this form to EXTEX Engineered Products, Attention: Robin David

Email: Robin.David@kaman.com

or

Fax: 480.632.1046

or

**Mail: Extex Engineered Products, Inc.
3110 N. Oakland, Mesa, AZ 85215**