PRATT & WHITNEY CANADA

SERVICE BULLETIN

P&WC S.B. No. 41098R1

BULLETIN INDEX LOCATOR
72-30-04

TURBOSHAFT ENGINE
GAS GENERATOR CASE P3 HOLES - INSPECTION/CLEANING OF

MODEL APPLICATION

PT6C-67C

Commercial Support Program No: 1008191

Compliance: CATEGORY 4

Summary: P3 holes in Gas Generator Case (GGC) may be partially obstructed by coating material. This may reduce the amount of secondary air available for cooling of the turbine disks and blades. This SB provides instructions to inspect and clean the P3 holes. It also provides recommendations for precautionary replacement of specific turbine components if the level of obstruction exceeds defined criteria.

Nov 03/2015
Revision No. 1: Jun 02/2016

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02 June 2016

P&WC S.B. No. 41098R1

REVISION TRANSMITTAL SHEET
TURBOSHAFT ENGINE MODEL PT6C

SUBJECT: Pratt & Whitney Canada Service Bulletin No. PT6C-72-41098, Rev. No. 1, dated Jun 02/2016 (P&WC S.B. No. 41098R1) GAS GENERATOR CASE P3 HOLES - INSPECTION/CLEANING OF

Replace your existing copy of this service bulletin with the attached revised bulletin. Destroy the superseded copy.

Please retain this Revision Transmittal Sheet with the revised bulletin.

SUMMARY: This revision is issued to:

- change “SI 73-2014” to “SB 41098” in Para. 3.C.2., Accomplishment Instruction, and
- update Table 4, list of acronyms.

EFFECT OF REVISION ON PRIOR ACCOMPLISHMENT:

None.

NOTE: A black bar in the left margin indicates a change in that line of text or figure.

REVISION HISTORY:

Original Issue: Nov 03/2015
Revision No. 1: Jun 02/2016

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SERVICE BULLETIN

P&WC S.B. No. 41098R1

TURBOSHAFT ENGINE
GAS GENERATOR CASE P3 HOLES - INSPECTION/CLEANING OF

1. Planning Information

A. Effectivity

PT6C-67C Engines which are before and include Serial No. PCE-KB0359 and Engines with Serial No. PCE-KB0396 and KB0398. Engines with Serial No. PCE-KB0334, KB0348, KB0349, KB0352, KB0353 and KB0357 are excluded.
Engines with SI 73-2014 indicated on the log book or the GGC are already compliant with this SB.

NOTE: 1. For engines being reduced to spare, this SB must be completed in his entirety prior to completing the reduced to spare process.

NOTE: 2. Refer to the accomplishment instructions for specific instructions on the re-identification of the GGC for engines with Serial No. PCE-KB0223 and KB0310.

B. Concurrent Requirements

None.

C. Reason

(1) Problem

P3 holes inside the GGC may be partially obstructed. This may reduce the amount of secondary air available for cooling of the turbine disks and blades.

(2) Cause

Possible presence of coating material inside the holes.

(3) Solution

Access the P3 holes and measure the diameter of each hole. Follow accomplishment instructions to determine if precautionary replacement of specific turbine components is required based on the level of obstruction and other operating conditions. If required, clean holes from any coating material.

D. Description

Access the P3 holes and measure the diameter of each hole. Follow accomplishment instructions to determine if precautionary replacement of specific turbine components is required based on the level of obstruction and other operating conditions. If required, clean holes from any coating material.

E. Compliance

CATEGORY 4 - P&WC recommends to do this service bulletin the first time the engine or module is at a maintenance base that can do the procedures, regardless of the scheduled maintenance action or reason for engine removal.

1. Planning Information (Cont'd)

F. Approval

D.O.T./D.A.A. approved.

G. Manpower

Estimate of 2 man-hours required to include this service bulletin at overhaul.

H. Weight and Balance

None.

I. Electrical Load Data

Not changed.

J. Software Accomplishment Summary

Not applicable.

K. References

Overhaul Manual P/N 3045333 (PT6C-67C)
Illustrated Parts Catalog P/N 3045334 (PT6C-67C)
PWA Overhaul Standard Practices Manual P/N 585005

L. Publications Affected

None.

M. Interchangeability and Intermixability of Parts

Interchangeability - Refer to Para. 2.C.

Intermixability - Not changed.

2. Material Information

A. Industry Support Information

Please refer to Commercial Support Program Notification (CSPN) 1008191.

B. Material - Cost and Availability

Not applicable.

2. Material Information (Cont'd)

C. Material Necessary for Each Engine

Not applicable.

D. Reidentified Parts

None.

E. Tooling - Price and Availability

Tool No.	Nomenclature	Est. Price ($US,)	Delivery
PWC70751	Reamer	Quote	

3. Accomplishment Instructions

A. Determine rotating turbine component serviceability:

(1) For engines with no previous overhaul and with original GGC:

(a) Gain access to the P3 holes in the GGC (Ref. Figure 1 and 2) using Overhaul Manual instructions.

(b) Carefully measure the diameter of the five P3 holes using pin gauges.

NOTE: It is very important to measure the holes without removing any material which may partially obstruct the passages. Measure within 0.001 in. (0.02 mm) accuracy.

(c) If all the holes have a diameter of 0.108 in. (2.74 mm) or more, no further action is required.

(d) If at least one of the holes has a diameter of less than 0.108 in. (2.74 mm), calculate the obstruction percentage using procedure in Appendix A.

(e) Based on obstruction percentage and the decision trees in Appendix B, determine if the CT blades, CT disk and 1st stage PT disk require precautionary replacement.

(f) If the obstruction exceeds 40%, contact P&WC Customer Engineering for recommendations regarding the following turbine component: Second stage PT disk, first and second stage PT blades.

(2) For engines that had a previous overhaul or that had the GGC replaced during a previous shop visit:

3. Accomplishment Instructions (Cont'd)

(a) As it is not possible to establish the restriction percentage prior the engine overhaul or replacement of the GGC, follow the decision tree in Appendix B using a restriction level of 35%.

(b) Turbine components newly installed during the overhaul or at the same time as the GGC replacement do not require replacement.

B. Restore nominal hole diameter as needed:

NOTE: This step is not required for GGC that had a previous overhaul as the holes are cleaned during the GGC overhaul process. For a GGC being sent for overhaul, this step is at the discretion of the shop considering that the holes will be cleaned during the overhaul process.

(1) For holes having a diameter smaller than 0.108 in. (2.74 mm), remove any coating or obstruction from the holes using reamer P/N PWC70751 with general grease to keep any loose swarf to a minimum.

NOTE: If a shank nut prevents access to any of the holes, remove shank nut and re-install a new one after the operation.

(2) Blow clean dry air into each hole. Make sure all loose particles are removed.

C. Re-identify the GGC with "SB 41098" as follows:

(1) Locate the part number on the GGC.

WARNING: USE EYE PROTECTION WHEN YOU WRITE WITH THE VIBRATION PEENING PROCEDURE

(2) Use the vibration peening procedure, 0.003 to 0.006 in (0.08 - 0.015 mm) deep, and write "SB 41098" close to the part number.

(3) Restore the coating using EMM instructions (Ref. 72-30-04 GAS GENERATOR CASE - MAINTENANCE PRACTICE (Approved repairs - Repair of Protective coating)) for repair of protective coating on the GGC. CIR instructions can be used as an alternative (Task 72-41-50-380-801).

NOTE: 1. For GGC being sent for overhaul, it is not necessary to restore the coating. This will be done as part of the GGC overhaul process.

NOTE: 2. The part number should be at the 12 o'clock position on the band adjacent to the fuel nozzle bosses.

(4) This re-identification procedure is to be accomplished on the GGC of engine S/N KB0223 and KB0310 as the intent of this SB was already applied during a previous shop visit as indicated in the log book.

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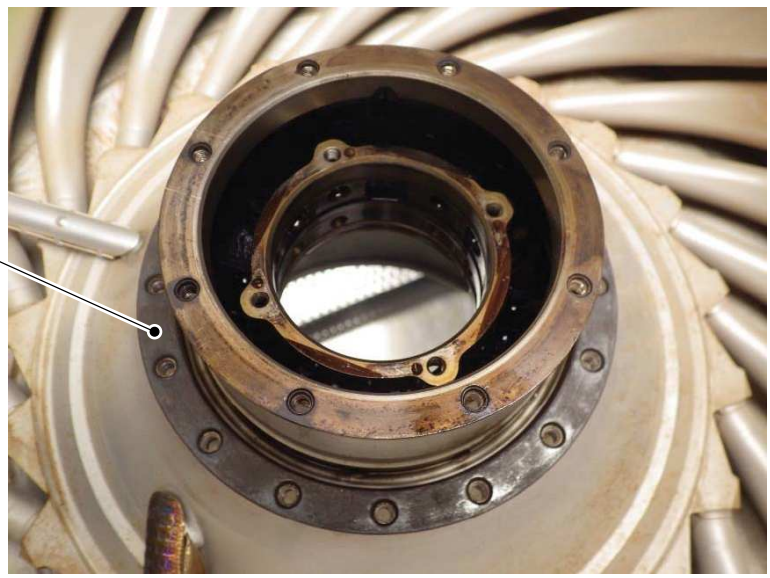

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Figure 1 - Position of the P3 Holes
Figure 1

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Figure 2 - Position of the P3 Holes
Figure 2

4. Appendix

Appendix A

A. Restriction percentage determination.

B. Enter the measured diameter of each hole in the Column A (Ref. Table 1 and Table 2).

C. Refer to Chart 1 (Ref. Table 3) below and enter the corresponding flow area reduction for each hole.

D. The average of the flow area reduction of the 5 holes corresponds to the restriction percentage.

TABLE 1, Column A

Holes	A	B
	Measured Diameter (Inches)	Flow Area Restriction % (Vs Nominal)
1		
2		
3		
4		
5		
Calculate average of the 5 holes flow area restriction to obtain the overall restriction percentage		

TABLE 2, Example:

Holes	A	B
	Measured Diameter (Inches)	Flow Area Restriction % (Vs Nominal)
1	0.101	14.1
2	0.098	19.2
3	0.097	20.8
4	0.103	10.7
5	0.099	17.5
Calculate average of the 5 holes flow area restriction to obtain the overall restriction percentage		16.5

4. Appendix (Cont'd)

TABLE 3, Chart 1

Measured Diameter	Flow Area Reduction % (Vs Nominal)
0.109 and over	0.0%
0.108	1.8%
0.107	3.6%
0.106	5.4%
0.105	7.2%
0.104	9.0%
0.103	10.7%
0.102	12.4%
0.101	14.1%
0.100	15.8%
0.099	17.5%
0.098	19.2%
0.097	20.8%
0.096	22.4%
0.095	24.0%
0.094	25.6%
0.093	27.2%
0.092	28.8%
0.091	30.3%
0.090	31.8%
0.089	33.3%
0.088	34.8%
0.087	36.3%
0.086	37.7%
0.085	39.2%
0.084	40.6%

4. Appendix (Cont'd)

TABLE 3, Chart 1 (Cont'd)

Measured Diameter	Flow Area Reduction % (Vs Nominal)
0.083	42.0%
0.082	43.4%
0.081	44.8%
0.080	46.1%
0.079	47.5%
0.078	48.8%

Appendix B

TABLE 4, List of acronyms

CT Disk	Compressor Turbine Disk
CT Blade	Compressor Turbine Blade
PT1 Disk	First Stage Power Turbine Disk
2.5min OEI	2.5 minutes OEI ITT rating

E. Note associated to the decision trees:

NOTE: 1. Refer to the Data Collection Unit (DCU) data and the engine log book to determine if the engine operated in the 2.5 minutes OEI ITT rating band.

NOTE: 2. If the CT blades have been replaced during or after the previous shop visit due low ITT margin, consider this statement as false.

NOTE: 3. High ambient temp definition:

The engine operated in an area having an annual average of daily max temp of 25°C or more.

If the engine was operated at several bases, use the warmest base location.

If not possible to determine all the base locations where the engine operated, consider that the engine operated in high ambient temp.

Weather statistics are available on several web sites. The preferred site is "www.worldweatheronline.com".

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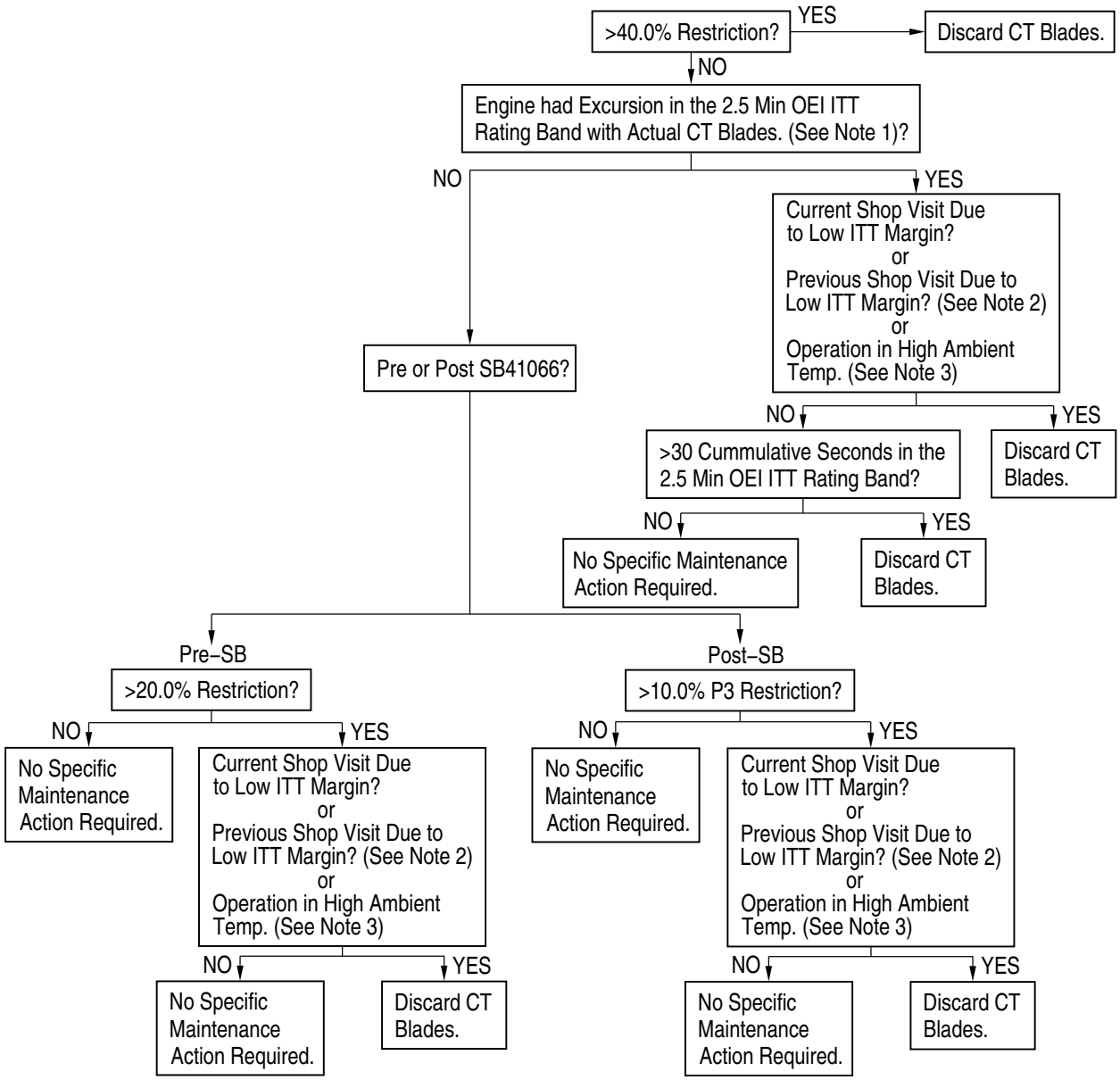

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CT Blade Decision Tree
Figure 3

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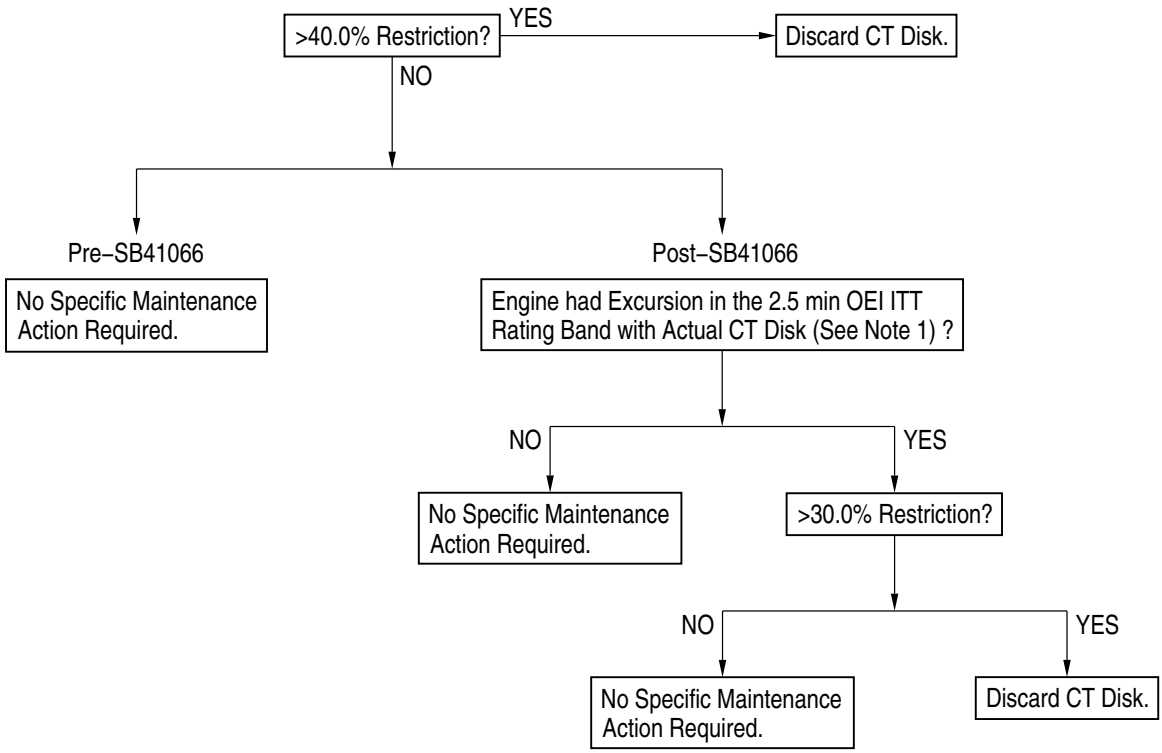
GAS GENERATOR CASE P3 HOLES - INSPECTION/CLEANING OF



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CT Disk Decision Tree
Figure 4

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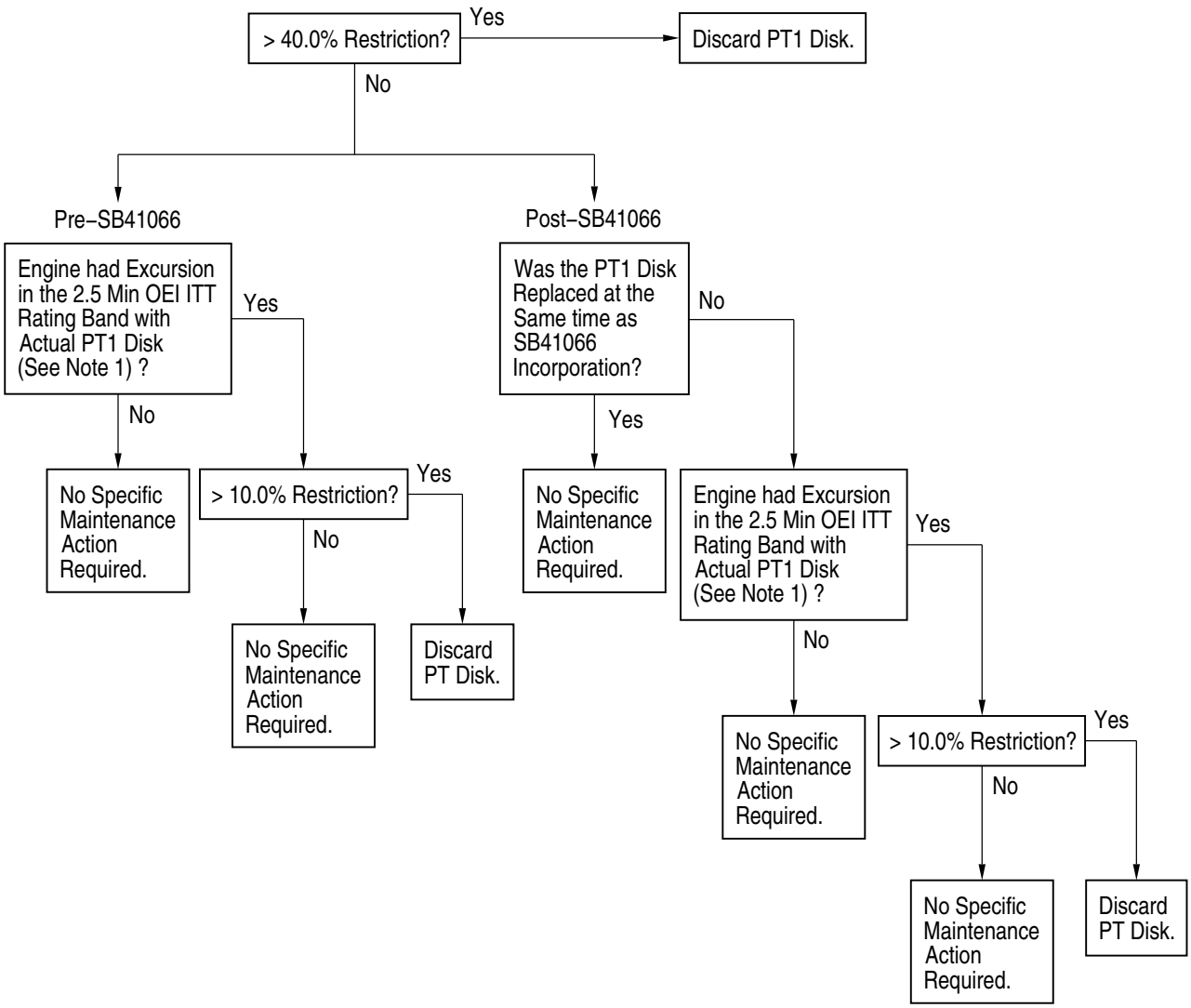
GAS GENERATOR CASE P3 HOLES - INSPECTION/CLEANING OF



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PT1 Disk Decision Tree
Figure 5