

SERVICE BULLETIN

NON-MODIFICATION SERVICE BULLETIN — ENGINE — HUB, HIGH PRESSURE
TURBINE (HPT), STAGE 1 AND 2 — ANGLE SCAN ULTRASONIC INSPECTION
TO FIND AN ANOMALY IN THE MATERIAL

MODEL APPLICATION
V2531-E5

BULLETIN ISSUE SEQUENCE
V2500-E5 Series 72-0015

ATA NUMBER
72-45-00

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U.S. Export Classification: EAR ECCN 9E991.

Compliance Category

3

IAE Distribution Code

V2500

December 15/20

V2500-E5-72-0015

Summary

The purpose of this Service Bulletin is to give instructions for a one-time angle scan ultrasonic inspection to find an anomaly in the material of specifically identified High Pressure Turbine (HPT) 1st and 2nd stage hubs.

Planning Information

Effectivity Data

Engine Models Applicable

V2531-E5

Engine Serial Nos. V30007 thru V30018

Concurrent Requirements

There are no concurrent requirements.

Reason

1. Condition: HPT 1st and 2nd stage hubs can show an anomaly in the material that can affect the part certified life. This Non-Modification Service Bulletin (NMSB) provides an inspection method to identify an anomaly and to take action if an anomaly is found.
2. Background: An anomaly in the material was found during inspection of HPT 1st and 2nd stage hubs. Inspection of HPT 1st and 2nd stage hubs delivered starting early 2017 is necessary to determine if an anomaly in the material is found.
3. Objective: Do a one-time angle scan ultrasonic inspections of the HPT 1st and 2nd stage hubs to determine if an anomaly in the material is found.
4. Substantiation: The angle scan ultrasonic inspection method provided in this Service Bulletin has been shown to be capable to identify an anomaly in the material.
5. Effects of Bulletin on:
 - Removal/Installation: Not Affected.
 - Disassembly/Assembly: Not Affected.
 - Cleaning: Not Affected.
 - Inspection/Check: Not Affected.
 - Repair: Not Affected.
 - Testing: Not Affected.

Description

Do an angle scan ultrasonic inspection of the HPT 1st and 2nd stage hubs.

Compliance

Category 3

Accomplish the inspection on HPT 1st and 2nd stage hubs identified in Table 1 and 2 before additional 3200 cycles are accumulated after January 1, 2021.

Approval Data

The times between inspection specified in Compliance and the inspection procedures specified in the Accomplishment Instructions agree with the applicable Federal Aviation Regulations and are FAA-APPROVED for the engine model(s) given.

This Service Bulletin does not contain any change information that revises the equipment definition covered by Embraer approved modifications.

Manpower

1. Engine installed on wing
..... Not Applicable
2. Engine fully assembled and not installed on wing
 - A. Disassembly and Assembly of the HPT 1st and 2nd stage hubs 184
3. Engine at Overhaul
..... Not Applicable

Weight and Balance

1. Weight Change
None.
2. Moment Arm
No Effect.
3. Datum
Engine Front Mount Centerline (Power Plant Station (PPS) 100)

Electrical Load Data

This Service Bulletin has no effect on the aircraft electrical load.

Software Accomplishment Summary

Not Applicable.

References

1. V2500 Standard Practices and Processes, P&W Ref. PN 2A4414, Chapter/Section 72-00-00.
2. V2500-E5 Series Illustrated Parts Catalog, P&W Ref. PN 2A4385, Chapter/Section 72-45-11 and 72-45-31.
3. V2500-E5 Series Engine Shop Manual, P&W Ref. PN 2A4383, Chapter/Section 72-00-31, 72-00-40, 72-00-45, 72-00-50, 72-45-00, 72-45-10, 72-45-11, 72-45-30, and 72-45-31.
4. Non-Destructive Inspection Procedure (NDIP) NDIP-1226. Angle Scan Ultrasonic Inspection Of The HPT 1st Stage Hub.
5. Non-Destructive Inspection Procedure (NDIP) NDIP-1227. Angle Scan Ultrasonic Inspection Of The HPT 2nd Stage Hub.

Publications Changed

1. V2500-E5 Series Illustrated Parts Catalog, P&W Ref. PN 2A4385, Chapter/Section 72-45-11 and 72-45-31.

Interchangeability of Parts

Not Applicable.

Information in the Appendix

Alternate Accomplishment Instructions (No)

Progression Charts (No)

Added Data (Yes)

Revision to Table of Limits (No)

Inspection Procedures (No)

Material Information

Material — Price and Availability

1. There is no new material cost to do this Service Bulletin if parts defects are found.
2. There is no kit provided to do this Service Bulletin.
3. Part availability information is provided in material data Instructions — Disposition.

Industry Support Program

Contact your IAE Customer Support Representative or IAE Customer Support Regional director for support program information.

The material data that follows is for each engine.

NOTE: It is possible to use the Chapter/Section and Figure/Item reference number shown below the old part number to find the part in the Illustrated Parts Catalog.

Because there are many different configurations used, it is frequently necessary to show more than one group of parts. When this occurs, parts that are interchangeable are shown line-by-line only, unless this is shown differently.

For V2531-E5 Engines:

New PN	Qty	Estimate of Unit Price (\$)	Keyword	Old PN	Instructions — Disposition
	1		TURBINE — HUB, STAGE 1	2A5001 (72-45-11-1-11)	(4)(X)
	1		TURBINE — HUB, STAGE 2	2A4802 (72-45-31-1-11)	(4)(X)

Modification and Spares Information

Estimated part prices are provided when they are available at time of publication. The Estimate of Unit Price is only for planning purposes and does not constitute a firm quotation. An asterisk (*) is shown where part pricing information was unavailable. In either case, contact IAE Spares for firm quotations.

Parts Modification Conditions

- (4) Do an inspection as specified in the Accomplishment Instructions.

Spare Parts Availability

- (X) There are no change in the part numbers of the HPT 1st and 2nd stage hubs as a result of the Service Bulletin. This is a non-modification Service Bulletin. See Reference 2, Illustrated Parts Data for applicable part numbers.

Vendor Services or Special Components/Materials

Vendor Services or Special Components/Materials

P&W Designation	Vendor Designation	Name	Vendor Name & Address
2A5001		TURBINE — HUB, STAGE 1	Aerospace Testing Lab 32 South Satellite Rd South Windsor, CT. 06074 USA
2A4802		TURBINE — HUB, STAGE 2	Aerospace Testing Lab 32 South Satellite Rd. South Windsor, CT. 06074 USA
URL: https://www.aerospacetestinglab.com			
FAA Repair License Number: ASKR260K			
Contact IAE for a list of additional approved vendors.			

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Tooling — Price and Availability

Special tools are not required to accomplish this Service Bulletin.

Reidentified Parts

Not Applicable.

Other Material Information Data

Not Applicable.

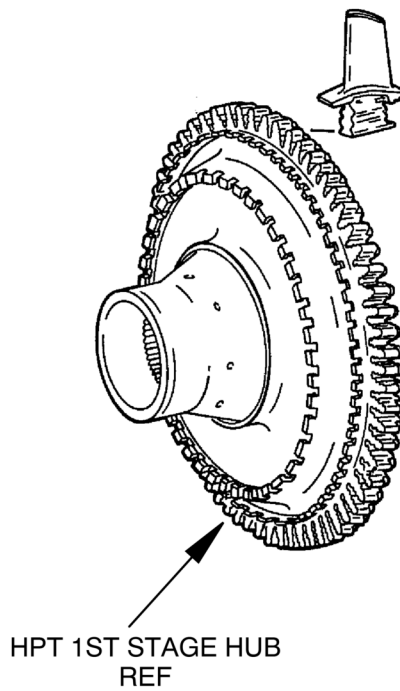
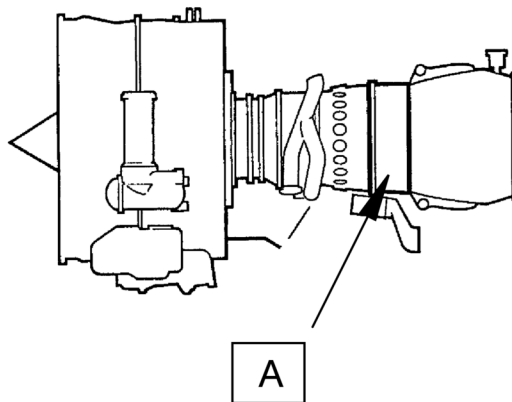
Accomplishment Instructions

NOTE: Part must be at piece part level to do inspection.

1. Before inspection
 - A. Do a check that part number(s) and serial number(s) identified in Tables 1 and 2 are installed in the engine.
 - (1) If an engine has part number(s) and serial number(s) identified in Table 1 and Table 2, continue to step 2. Otherwise, no more actions are necessary.
2. Disassemble the engine as follows.
 - A. Remove the fan module as specified in Reference 3, Engine Manual, Chapter/Section 72-00-31.
 - B. Remove the Low Pressure Turbine (LPT)/Turbine Exhaust Case (TEC) module as specified in Reference 3, Engine Manual, Chapter/Section 72-00-50.
 - C. Remove the HP system module as specified in Reference 3, Engine Manual, Chapter/Section 72-00-40.
 - D. Remove the HPT rotor and stator assembly as specified in Reference 3, Engine Manual, Chapter/Section 72-00-45.
 - E. Remove the HPT 1st stage rotor assembly from the HPT rotor and stator assembly as specified in Reference 3, Engine Manual, Chapter/Section 72-45-00.
 - F. Remove the HPT 1st Stage Hub, PN 2A5001, identified by serial number in Table 1 as specified in Reference 3, Engine Manual, Chapter/Section 72-45-10.
 - G. Remove the HPT 2nd stage rotor assembly from the HPT rotor and stator assembly as specified in Reference 3, Chapter/Section 72-45-00.
 - H. Remove the HPT 2nd Stage Hub, PN 2A4802, identified by serial number in Table 2 as specified in Reference 3, Engine Manual, Chapter/Section 72-45-30.
3. Clean the HPT 1st Stage Hub, PN 2A5001 as specified in Reference 3, Engine Manual, Chapter/Section Task 72-45-11-100-001.
4. Clean the HPT 2nd Stage Hub, PN 2A4802 as specified in Reference 3, Engine Manual, Chapter/Section Task 72-45-31-100-001.
5. Send the HPT 1st stage or 2nd stage hub to an approved source specified in the Vendor Services section of the Service Bulletin for the angle scan ultrasonic inspection.
6. Examine the HPT 1st stage hub parts with serial number identified in Table 1 as specified in Reference 4, NDIP-1226 as follows.
7. Examine the HPT 2nd stage hub parts with serial numbers identified in Table 2 as specified in Reference 5, NDIP-1227 as follows.
8. Remove the hub from service if the part does not pass inspection as specified in Reference 4, NDIP-1226 or Reference 5, NDIP-1227.
9. If part is accepted per Reference 4, NDIP-1226 or Reference 5, NDIP-1227 mark the hub as follows.
 - A. Use the vibration peen method and mark "72-0015" on the rear face of the fir tree, same as the PN and SN but on the next available lug as specified in Reference 1,

Standard Practices Manual, Chapter/Section 70-09-00-400-501. See Figure 1 thru Figure 6.

10. Assemble the engine as follows.
 - A. Assemble the HPT 1st stage hub as specified in Reference 3, Engine Manual, Chapter/Section 72-45-10.
 - B. Assemble the HPT 1st stage rotor assembly as specified in Reference 3, Engine Manual, Chapter/Section 72-45-00.
 - C. Assemble the HPT 2nd stage hub as specified in Reference 3, Engine Manual, Chapter/Section 72-45-30.
 - D. Assemble the HPT 2nd stage rotor assembly as specified in Reference 3, Engine Manual, Chapter/Section 72-45-00.
 - E. Install the HPT rotor and stator assembly as specified in Reference 3, Engine Manual, Chapter/Section 72-00-45.
 - F. Install the HP system module as specified in Reference 3, Engine Manual, Chapter/Section 72-00-40.
 - G. Install the LPT/TEC module as specified in Reference 3, Engine Manual, Chapter/Section 72-00-50.
 - H. Install the fan module as specified in Reference 3, Engine Manual, Chapter/Section 72-00-31.
11. A record of the accomplishment is necessary.
 - A. Record the accomplishment of the service bulletin in the applicable engine records.



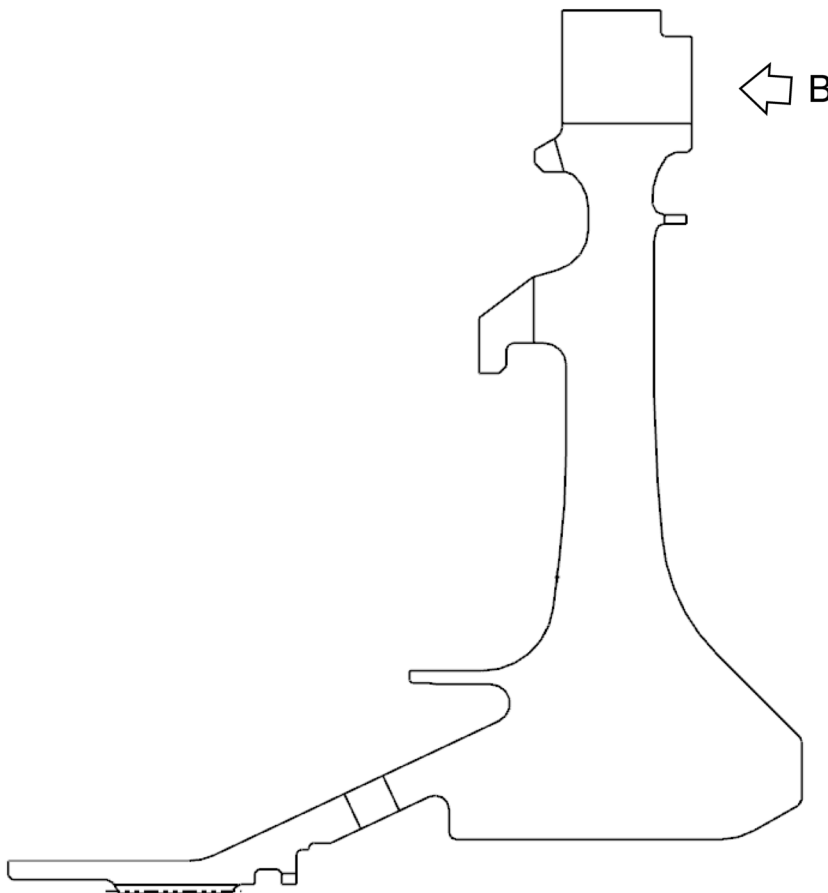
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LOCATION OF THE HPT 1ST STAGE HUB
72-45-11
FIGURE 1

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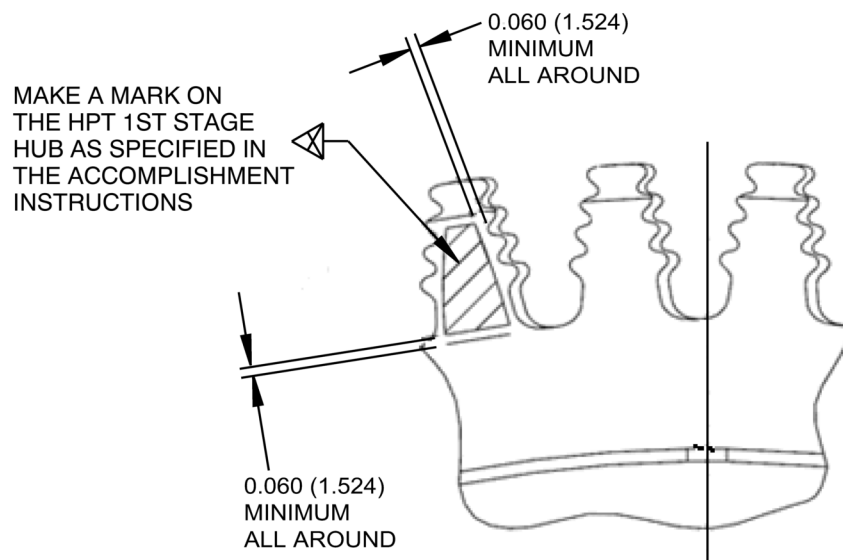
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MARK LOCATION OF THE HPT 1ST STAGE HUB
FIGURE 2

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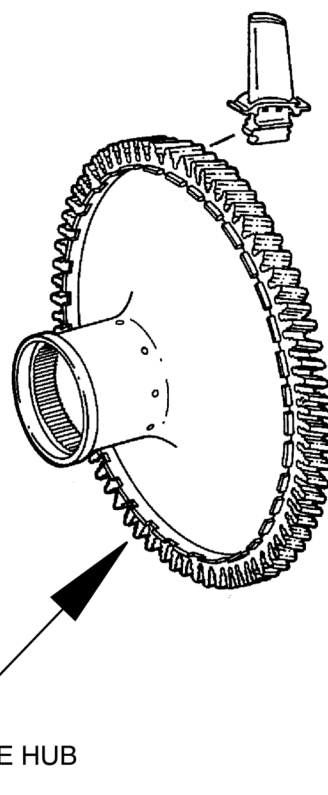
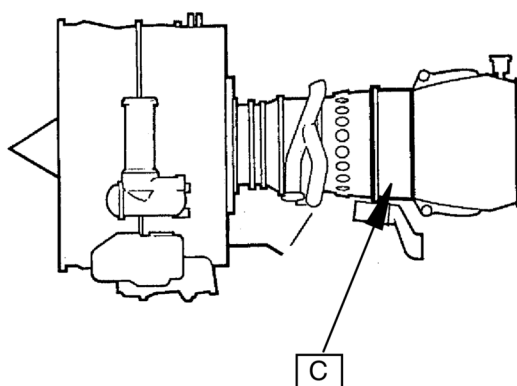
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MARK LOCATION OF THE HPT 1ST STAGE HUB
FIGURE 3

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HPT 2ND STAGE HUB
REF

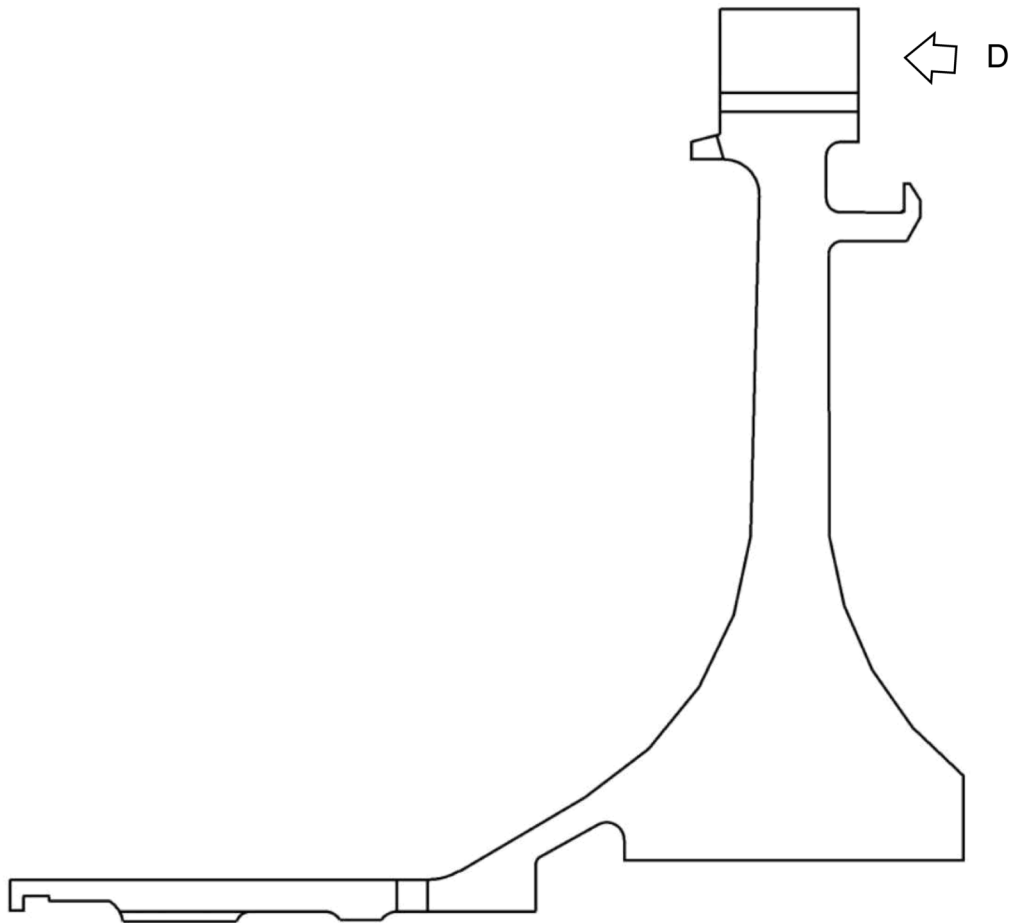
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THE LOCATION OF THE HPT 2ND STAGE HUB
72-45-31
FIGURE 4

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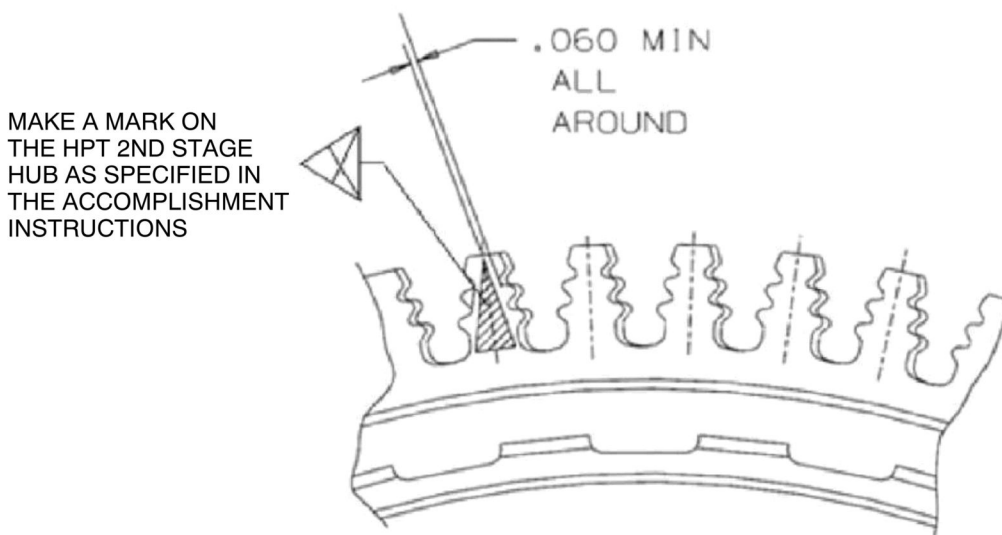
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MARK LOCATION OF THE HPT 2ND STAGE HUB
FIGURE 5

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MARK LOCATION OF THE HPT 2ND STAGE HUB
FIGURE 6

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Appendix

Added Data

Internal Reference Information

Revision No.	Reference Document	Origination
Original	EA20VC467A	MK/SG

Number values shown in parentheses adjacent to U.S. values are International System of units (SI) equivalents.

To calculate part life, include the hours and/or cycles since the part was made. Use the total hours or cycles to calculate life limits that are the result of part modification, a part used in an engine with different thrust, or for some other reason.

Appendix A

Table 1 – Serial Numbers (SN) For The HPT 1st Stage Hub, PN 2A5001

PKLBR37917	PKLBRX9425
PKLBR83750	PKLBRY9866
PKLBR86825	PKLBSG1219
PKLBRF8408	PKLBSG2280
PKLBRF8423	PKLBSJ9222
PKLBRT9547	PKLBSK7523

Table 2 – Serial Numbers (SN) For The HPT 2nd Stage Hub, PN 2A4802

PKLBR37634	PKLBRX9712
PKLBR83748	PKLBRY9396
PKLBR86978	PKLBSG1910
PKLBRF8389	PKLBSG2564
PKLBRF8390	PKLBSG3737
PKLBRX9447	PKLBSK2455