



ENGINE - DIFFUSER AND COMBUSTION GROUP AND STAGE 1 TURBINE NOZZLE ASSEMBLY - THERMAL
BARRIER COATING FOR COMBUSTOR LINERS - CATEGORY CODE 5 - MOD.ENG-72-0006

1. Planning Information

A. Effectivity

- (1) Aircraft: Airbus A320
- (2) Engine: V2500-A1 Engines prior to Serial No.V0046, except Serial No.s V0034, V0036, V0038, V0039, V0042 and V0043.

B. Condition

(1) Problem

Segments in rows two, three and four of the Outer Combustion Chamber and in rows two and three of the Inner Combustion Chamber overheat and distress earlier than the segments in other rows and may cause premature engine removals.

(2) Background

Development testing has revealed that there is greater distress in rows two, three and four of the Outer Burner Liner and in rows two and three of the Inner Burner Liner than in other rows. Hot gases have a greater tendency to cause distress in the middle rows because of the burner flame characteristics.

(3) Objective

To prevent premature distress to specific rows of the Outer Burner Liner and Inner Burner Liner by applying a thermal barrier coating to the burner segments. Applying the thermal barrier coating to the affected rows increases the life of the segments in those rows by a factor of up to 3.

(4) Substantiation

The changes recommended in the Service Bulletin have been subjected to extensive engine testing that duplicated or exceeded the conditions that contributed to the problem.

(5) Effect of Bulletin on the following shop functions:

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Removal/Installation	Not affected
Disassembly/Assembly	Not affected
Cleaning	Not affected
Inspection/Check	Affected (See Supplemental Information)
Repair	Affected (See Supplemental Information)
Testing	Not affected

(6) Supplemental Information:

- (a) The Inspection/Check procedures are different because the Post-Service Bulletin parts have a thermal barrier coating.
- (b) VRS3092 and VRS3173 will be added to give replacement repairs for the coated segments.

C. Description

- (1) The durability of the combustion chamber liners is improved as follows:

Used combustion chamber liner segments are replaced with new combustion chamber liner segments which have a thermal barrier coating.

D. Approval

The part number changes and/or part modifications described in Sections 2 and 3 of this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the Engine Model listed.

E. Compliance

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Accomplish when the engine is disassembled sufficiently to afford access to the affected sub-assembly (i.e. modules, accessories, components, build groups) and to all affected spare sub-assemblies.

F. Manpower

Venue	Estimated Manhours
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- | | |
|--|----------------------|
| (1) In Service | Not applicable |
| (2) At overhaul (Note: The parts affected by this Service Bulletin are accessible at overhaul). | |
| (a) Time required for
disassembly and assembly
of inner and outer
combustion chamber liners | |
| Total | 11 hours, 46 minutes |

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G. Material - Price and Availability

- (1) Modification Kit not required.
- (2) See Material Information section for prices and availability of future spares.

H. Tooling - Price and Availability

Special tools are not required.

I. Weight and Balance

- (1) Weight change Plus 1.0 lb (0,45 Kg)
- (2) Moment arm No effect
- (3) Datum Engine Front Mount Centerline
(Powerplant Station P.P.S. 100)

J. Electrical Load Data

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

K. References

- (1) Internal Reference No.

87VA193

89VA026
- (2) Other References.

V2500 Engine Manual.

V2500 Standard Practices Manual.

L. Other Publications Affected

- (1) V2500 Illustrated Parts Catalog, Chapter/Section 72-42-61 and 72-44-30 are revised to add the new parts.
- (2) The V2500 Engine Manual Chapter/Section 72-41-62 Cleaning and 72-44-30 Cleaning are revised to add the new parts.
- (3) The V2500 Engine Manual, Chapter/Section 72-42-61 Inspection/Check and 72-44-30 Inspection/Check are revised to add inspection procedure for the new parts.

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- (4) The V2500 Engine Manual Chapter/Section 72-41-61 Repair and 72-44-30 Repair are revised to add VRS 3092 and 3173 respectively.

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2. Accomplishment Instructions

A. Rework Instructions

There are no rework instructions necessary for this Bulletin.

B. Disassembly/Assembly Instructions

- (1) The new parts can be used to replace all the old parts in the affected rows or can be intermixed with the old parts.
- (2) Replace the Outer Combustion Chamber Liner Segments in the PN 2A1383 or PN 2A1385 Outer Combustion Chamber Assembly (1 off) by the instructions in Reference (1), Chapter/Section 72-42-60, Assembly, Figure 1, and as follows:
 - (a) Remove the PN 2A1323 Outer Combustion Chamber Liner Segments (10 off and install the PN 2A1391 Outer Combustion Chamber Liner Segments (10 off).
 - (b) Remove the PN 2A1324 Outer Combustion Chamber Liner Segments (10 off) and install the PN 2A1392 Outer Combustion Chamber Liner Segments (10 off).
 - (c) Remove the PN 2A1076 Outer Combustion Chamber Liner Segments (8 off) and install the PN 2A1393 Outer Combustion Chamber Liner Segments (8 off).
 - (d) Remove the PN 2A1077 Outer Combustion Chamber Liner Segment (1 off) and install the PN 2A1394 Outer Combustion Chamber Liner Segment (1 off).
 - (e) Remove the PN 2A1078 Outer Combustion Chamber Liner Segment (1 off) and install the PN 2A1395 Outer Combustion Chamber Liner Segment (1 off).
 - (f) Identify the PN 2A1383 Outer Combustion Chamber Assembly as PN 2A2013 Outer Combustion Chamber Assembly by the approved procedures in Reference (2), Chapter/Section 70-09-00, Marking of Parts.

NOTE: You cannot change the part number unless all the segments in the affected rows are replaced with coated segments.

- (g) Identify the PN 2A1385 Outer Combustion Chamber Assembly as PN 2A1399 Outer Combustion Chamber Assembly by the approved procedures in Reference (2), Chapter/Section 70-09-00, Marking of Parts.

NOTE: You cannot change the part number unless all the segments in the affected rows are replaced with coated segments.

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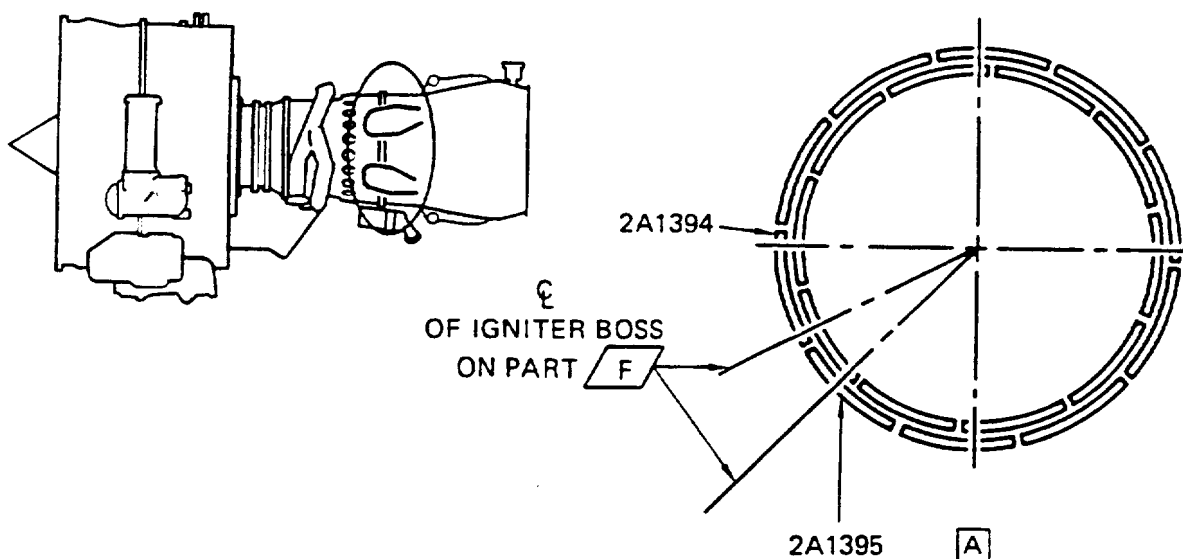


- (3) Replace the Inner Combustion Chamber Liner Segments in the PN 2A1374 Inner Combustion Chamber Assembly (1 off) by the instructions given in Reference (1), Chapter/Section 72-44-30 Assembly, Figure 2, and as follows:
- (a) Remove the PN 2A1325 Inner Combustion Chamber Liner Segments (10 off) and install the PN 2A1397 Inner Combustion Liner Segments (10 off).
 - (b) Remove the PN 2A1084 Inner Combustion Chamber Liner Segments (10 off) and install the PN 2A1396 Inner Combustion Chamber Liner Segments (10 off).
 - (c) Identify the PN 2A1374 Inner Combustion Chamber Assembly as PN 2A1398 Inner Combustion Chamber Assembly by the approved procedures in Reference (2), Chapter/Section 70-09-00, Marking of Parts.

NOTE: You cannot change the part number unless all the segments in the affected rows are replaced with coated segments.

C. Recording Instructions

- (1) A record of accomplishment is necessary.



REMOVE PN 2A1077 LINER SEGMENT (1 off) AND INSTALL PN 2A1394 LINER SEGMENT (1 off)

REMOVE PN 2A1078 LINER SEGMENT (1 off) AND INSTALL PN 2A1395 LINER SEGMENT (1 off)

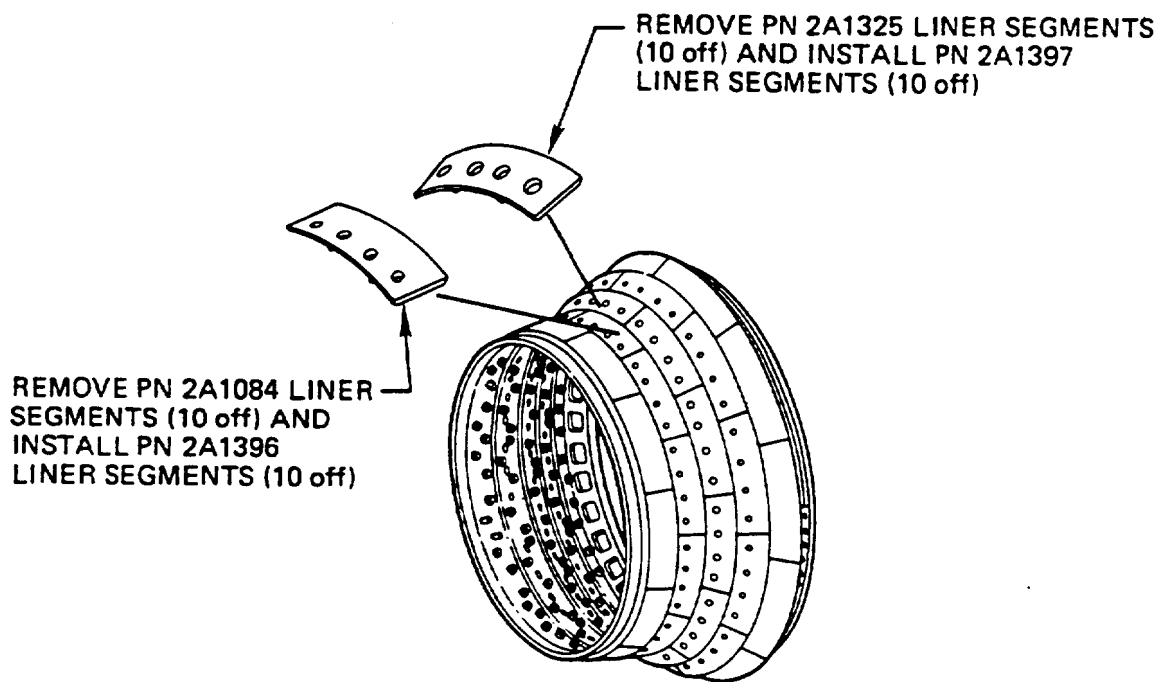
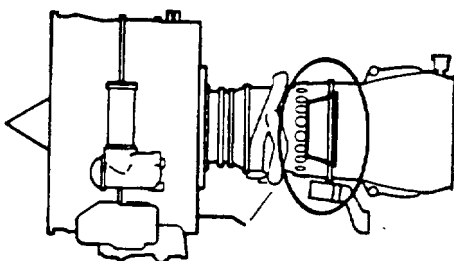
REMOVE PN 2A1323 LINER SEGMENTS (10 off) AND INSTALL PN 2A1391 LINER SEGMENTS (10 off)

REMOVE PN 2A1324 LINER SEGMENTS (10 off) AND INSTALL PN 2A1392 LINER SEGMENTS (10 off)

REMOVE PN 2A1076 LINER SEGMENTS (8 off) AND INSTALL PN 2A1393 LINER SEGMENTS (8 off)

Location Of Outer Combustion Chamber Liner Segments
Fig.1

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Location Off Inner Combustion Chamber Liner Segments
Fig.2

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3. Material Information

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Applicability: For each V2500 Engine to incorporate this Bulletin.

A. Kits associated with this Bulletin:

None.

B. Parts affected by this Bulletin:

2A1399 (72-42-61) or 2A2013 (72-42-61)	1	-	Outer Combustion Chamber Assembly or Outer Combustion Chamber Assembly	2A1385 (01-501)	(A)(B)
2A1391 (72-42-61)	10	214.00	Combustion Chamber Liner Segment	2A1323 (01-610)	(A)(B)
2A1392 (72-42-61)	10	214.00	Combustion Chamber Liner Segment	2A1324 (01-620)	(A)(B)
2A1393 (72-42-61)	8	214.00	Combustion Chamber Liner Segment	2A1076 (01-650)	(A)(B)
2A1394 (72-42-61)	1	214.00	Combustion Chamber Liner Segment	2A1077 (01-660)	(A)(B)
2A1395 (72-42-61)	1	214.00	Combustion Chamber Liner Segment	2A1078 (01-670)	(A)(B)
2A1398 (72-44-30)	1	-	Inner Combustion Chamber Assembly	2A1374 (01-401)	(A)(B)
2A1397 (72-44-30)	10	224.00	Combustion Chamber Liner Segment	2A1325 (01-600)	(A)(B)
2A1396 (72-44-30)	10	224.00	Combustion Chamber Liner Segment	2A1084 (01-620)	(A)(B)

C. Instructions/Disposition Code Statements:

- (A) The new part is currently available.
(B) The old part will no longer be available.
(C) The new part can be obtained only by modification.

NOTE: The estimated 1989 unit prices shown are provided for planning purposes only and do not constitute a firm quotation. Contact IAE's Spare Parts Sales Department for information concerning firm prices.

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