

SERVICE BULLETIN

ENGINE - STAGE 1 HIGH PRESSURE TURBINE VANE CLUSTER ASSEMBLY - PROVIDE A MODIFICATION OF STAGE 1 HPT VANE ASSEMBLIES - CATEGORY CODE 8 - MOD.ENG-72-0312

1. Planning Information

A. Effectivity

- (1) Aircraft: Airbus A320, A321
- (2) Engine: V2500-A1 Engines - any engine as applicable

B. Reason

(1) Condition:

Not applicable. An alternate repair method that is the equivalent of repairs currently in place is being introduced.

(2) Background:

Not applicable. See condition.

(3) Objective:

Provide an alternate V2500-A1 Stage 1 vane repair (VRS 3574) that utilizes ceramic coating of both the airfoil and platforms in conjunction with laser drilled cooling holes. The current repair method does not use ceramic coating on the airfoil surface and does use an EDM procedure to create the cooling holes.

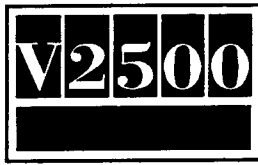
(4) Substantiation

This new repair scheme utilizing full ceramic coating and laser drilled round cooling holes was successfully demonstrated in an experimental engine.

(5) Effects of Bulletin on Workshop Procedures:

Removal/Installation	Not affected
Disassembly/Assembly	Not affected
Cleaning	Not affected
Inspection/Check	Not affected
Repair	Not affected
Testing	Not affected

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(6) Supplemental Information

C. Description

- (1) Send the applicable Stage 1 High Pressure Turbine Vane Cluster Assemblies to the approved vendor given in Paragraph 2.A., Accomplishment Instructions, for modification and identification to the new part number.

D. Approval

The Part Number Changes and/or part modifications described in Section 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

Category 8

Accomplish based upon experience with the prior configuration.

F. Manpower

Estimated Manhours to incorporate the full intent of this Bulletin:

Venue	Estimated Manhours
(1) In service	Not applicable
(2) At overhaul	Not applicable

G. Material – Price and Availability

- (1) Modification kit is not required. Parts are supplied as single line items.
- (2) See "Material Information" section for prices and availability of future spares.

H. Tooling – Price and Availability

Special tools are not required to accomplish this Service Bulletin.

I. Weight and Balance

- | | |
|-------------------|--|
| (1) Weight change | None |
| (2) Moment arm | No effect |
| (3) Datum | Engine Front mount Centerline
(Power Plant station (PPS) 100) |

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J. Electrical Load Data

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

K. References

(1) Internal Reference No.

98VA005

98VA005A

98VA005B

(2) Other References

IAE V2500 Service Bulletins:

V2500-ENG-70-0188 (Information - Engine - To Announce New Stage 1 Turbine Vane Assemblies

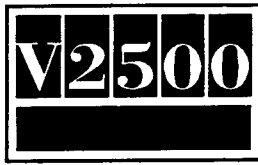
The V2500 Engine Illustrated Parts Catalog (S-V2500-1IA), Chapter/Section 72-44-20

The V2500 Engine Manual (E-V2500-1IA), Chapter/Section 72-44-20

L. Other Publications Affected

(1) The V2500 Engine Illustrated Parts Catalog, Chapter/Section 72-44-20, Figure 1, to add the new parts.

(2) The V2500 Engine Manual, (E-V2500-1IA), Chapter/Section 72-44-20 Cleaning, Inspection and Repair, to add the new parts.



2. Accomplishment Instructions

- A. The Source Demonstration requirements of this rework means that any facility not authorized to accomplish this rework either utilize the Authorized Vendors listed below or contact IAE Manager Maintenance Operations to determine if a qualification program can be initiated at their facility.

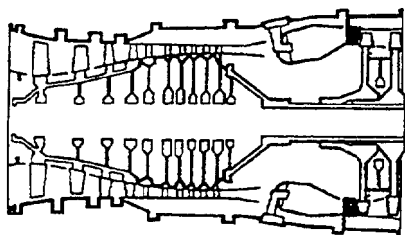
IAE-INTERNATIONAL AERO ENGINES AG
400 Main Street M/S 121-10
East Hartford, CT 06108 USA

- B. Authorized Rework Vendors for this bulletin are listed below.

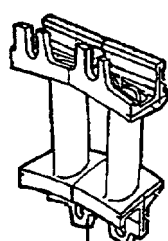
Pratt & Whitney Overhaul & Repair Center
Airfoil Repair Technology
415 Washington Ave.
North Haven, CT 06473 USA

- C. The designation by IAE of an authorized rework vendor indicates that the vendor has demonstrated the necessary capability to enable it to carry out the rework. However, IAE makes no warranties or representations concerning the qualifications or quality standards of the vendors to carry out the rework, and accepts no responsibility whatsoever for any work that may be carried out by a rework vendor, other than when IAE is listed as the vendor. Authorized rework vendors do not act as agents or representatives of IAE.
- D. Send the applicable Stage 1 High Pressure Turbine Vane Clusters to the approved source listed above for modification per VRS 3574 and identification to the new part number. Identify the new parts with the part numbers that follow:

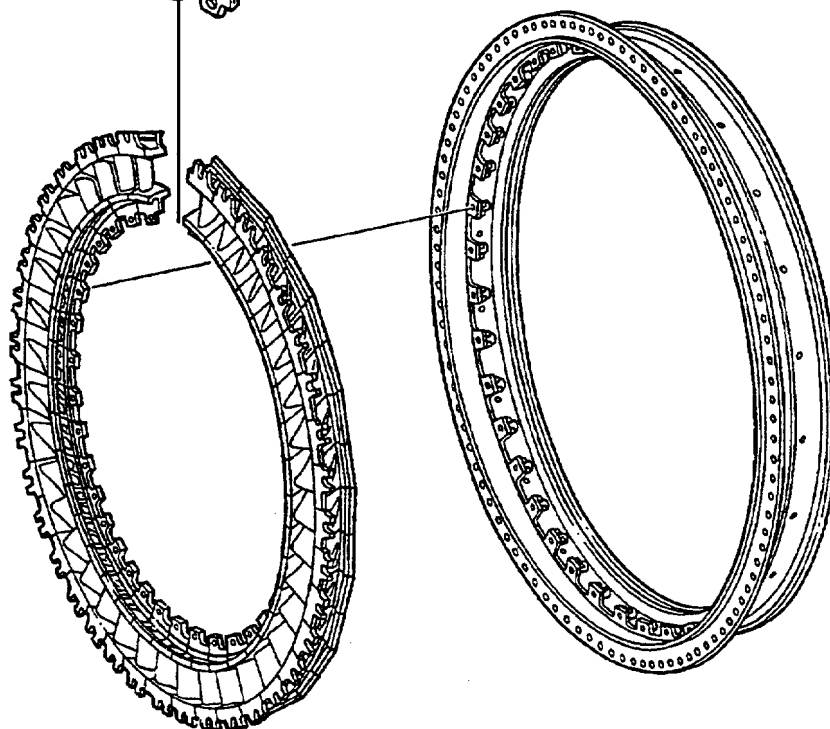
Old Part Number	New Part Number
2A2591 (class 21 through 51)	2A2591-001 (class 21 through 51)
2A0091 (class 21 through 49, except 47-5)	2A2591-001 (class 21 through 49, except 47-5)



MODULE 40



SEND THE APPLICABLE 2A0091 OR
2A2591 STAGE 1 HPT VANE CLUSTER
ASSEMBLIES TO AN AUTHORIZED
REWORK VENDOR



Location of the Stage 1 HPT Vane Cluster Assembly
Fig.1

de000e7932



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3. Material Information

Applicability: For each V2500 Engine to incorporate this Bulletin.

A. Kit associated with this bulletin.

None

B. Parts affected by this bulletin.

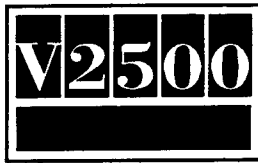
New Part No. (ATA No.)	Est'd Unit Qty	Price (\$)	Old Part No. Keyword	(IPC No.)	Instructions Disposition
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Applicability: For each V2500 Engine to incorporate this Service Bulletin

2A2591CL21-001 (72-44-20)	20		Vane Cluster HPT, Stage 1, Assembly	2A2591CL21 (01-250)	(S1)(1D) (A)(B)
			or		
			Vane Cluster HPT, Stage 1, Assembly	2A0091CL21 (01-250)	(B)
2A2591CL22-001 (72-44-20)	20		Vane Cluster HPT, Stage 1, Assembly	2A2591CL22 (01-251)	(S1)(1D) (A)(B)
			or		
			Vane Cluster HPT, Stage 1, Assembly	2A0091CL22 (01-251)	(B)
2A2591CL23-001 (72-44-20)	20		Vane Cluster HPT, Stage 1, Assembly	2A2591CL23 (01-252)	(S1)(1D) (A)(B)
			or		
			Vane Cluster HPT, Stage 1, Assembly	2A0091CL23 (01-252)	(B)
2A2591CL24-001 (72-44-20)	20		Vane Cluster HPT, Stage 1, Assembly	2A2591CL24 (01-253)	(S1)(1D) (A)(B)
			or		
			Vane Cluster HPT, Stage 1, Assembly	2A0091CL24 (01-253)	(B)
2A2591CL25-001 (72-44-20)	20		Vane Cluster HPT, Stage 1, Assembly	2A2591CL25 (01-254)	(S1)(1D) (A)(B)
			or		
			Vane Cluster HPT, Stage 1, Assembly	2A0091CL25 (01-254)	(B)

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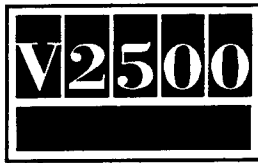


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2A2591CL26-001	20	Assembly	
(72-44-20)		Vane Cluster	2A2591CL26 (S1)(1D)
		HPT, Stage 1,	(01-255) (A)(B)
		Assembly	
		or	
		Vane Cluster	2A0091CL26 (B)
		HPT, Stage 1,	(01-255)
		Assembly	
2A2591CL27-001	20	Vane Cluster	2A2591CL27 (S1)(1D)
(72-44-20)		HPT, Stage 1,	(01-256) (A)(B)
		Assembly	
		or	
		Vane Cluster	2A0091CL27 (B)
		HPT, Stage 1,	(01-256)
		Assembly	
2A2591CL28-001	20	Vane Cluster	2A2591CL28 (S1)(1D)
(72-44-20)		HPT, Stage 1,	(01-257) (A)(B)
		Assembly	
		or	
		Vane Cluster	2A0091CL28 (B)
		HPT, Stage 1,	(01-257)
		Assembly	
2A2591CL29-001	20	Vane Cluster	2A2591CL29 (S1)(1D)
(72-44-20)		HPT, Stage 1,	(01-258) (A)(B)
		Assembly	
		or	
		Vane Cluster	2A0091CL29 (B)
		HPT, Stage 1,	(01-258)
		Assembly	
2A2591CL30-001	20	Vane Cluster	2A2591CL30 (S1)(1D)
(72-44-20)		HPT, Stage 1,	(01-259) (A)(B)
		Assembly	
		or	
		Vane Cluster	2A0091CL30 (B)
		HPT, Stage 1,	(01-259)
		Assembly	
2A2591CL31-001	20	Vane Cluster	2A2591CL31 (S1)(1D)
(72-44-20)		HPT, Stage 1,	(01-260) (A)(B)
		Assembly	
		or	
		Vane Cluster	2A0091CL31 (B)
		HPT, Stage 1,	(01-260)
		Assembly	
2A2591CL32-001	20	Vane Cluster	2A2591CL32 (S1)(1D)
(72-44-20)		HPT, Stage 1,	(01-261) (A)(B)
		Assembly	
		or	
		Vane Cluster	2A0091CL32 (B)
		HPT, Stage 1,	(01-261)
		Assembly	
2A2591CL33-001	20	Vane Cluster	2A2591CL33 (S1)(1D)

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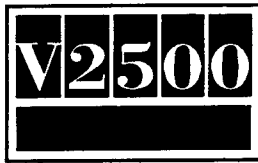


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(72-44-20)		HPT, Stage 1, (01-262) Assembly or Vane Cluster 2A0091CL33 HPT, Stage 1, (01-262) Assembly	(A)(B) (B)
2A2591CL34-001 (72-44-20)	20	Vane Cluster 2A2591CL34 HPT, Stage 1, (01-263) Assembly or Vane Cluster 2A0091CL34 HPT, Stage 1, (01-263) Assembly	(S1)(1D) (A)(B) (B)
2A2591CL35-001 (72-44-20)	20	Vane Cluster 2A2591CL35 HPT, Stage 1, (01-264) Assembly or Vane Cluster 2A0091CL35 HPT, Stage 1, (01-264) Assembly	(S1)(1D) (A)(B) (B)
2A2591CL36-001 (72-44-20)	20	Vane Cluster 2A2591CL36 HPT, Stage 1, (01-265) Assembly or Vane Cluster 2A0091CL36 HPT, Stage 1, (01-265) Assembly	(S1)(1D) (A)(B) (B)
2A2591CL37-001 (72-44-20)	20	Vane Cluster 2A2591CL37 HPT, Stage 1, (01-266) Assembly or Vane Cluster 2A0091CL37 HPT, Stage 1, (01-266) Assembly	(S1)(1D) (A)(B) (B)
2A2591CL38-001 (72-44-20)	20	Vane Cluster 2A2591CL38 HPT, Stage 1, (01-267) Assembly or Vane Cluster 2A0091CL38 HPT, Stage 1, (01-267) Assembly	(S1)(1D) (A)(B) (B)
2A2591CL39-001 (72-44-20)	20	Vane Cluster 2A2591CL39 HPT, Stage 1, (01-268) Assembly or Vane Cluster 2A0091CL39 HPT, Stage 1, (01-268) Assembly	(S1)(1D) (A)(B) (B)
2A2591CL40-001 (72-44-20)	20	Vane Cluster 2A2591CL40 HPT, Stage 1, (01-269) Assembly	(S1)(1D) (A)(B)

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		or		
		Vane Cluster	2A0091CL40	(B)
		HPT, Stage 1,	(01-269)	
		Assembly		
2A2591CL41-001	20	Vane Cluster	2A2591CL41	(S1)(1D)
(72-44-20)		HPT, Stage 1,	(01-270)	(A)(B)
		Assembly		
		or		
		Vane Cluster	2A0091CL41	(B)
		HPT, Stage 1,	(01-270)	
		Assembly		
2A2591CL42-001	20	Vane Cluster	2A2591CL42	(S1)(1D)
(72-44-20)		HPT, Stage 1,	(01-271)	(A)(B)
		Assembly		
		or		
		Vane Cluster	2A0091CL42	(B)
		HPT, Stage 1,	(01-271)	
		Assembly		
2A2591CL43-001	20	Vane Cluster	2A2591CL43	(S1)(1D)
(72-44-20)		HPT, Stage 1,	(01-272)	(A)(B)
		Assembly		
		or		
		Vane Cluster	2A0091CL43	(B)
		HPT, Stage 1,	(01-272)	
		Assembly		
2A2591CL44-001	20	Vane Cluster	2A2591CL44	(S1)(1D)
(72-44-20)		HPT, Stage 1,	(01-273)	(A)(B)
		Assembly		
		or		
		Vane Cluster	2A0091CL44	(B)
		HPT, Stage 1,	(01-273)	
		Assembly		
2A2591CL45-001	20	Vane Cluster	2A2591CL45	(S1)(1D)
(72-44-20)		HPT, Stage 1,	(01-274)	(A)(B)
		Assembly		
		or		
		Vane Cluster	2A0091CL45	(B)
		HPT, Stage 1,	(01-274)	
		Assembly		
2A2591CL46-001	20	Vane Cluster	2A2591CL46	(S1)(1D)
(72-44-20)		HPT, Stage 1,	(01-275)	(A)(B)
		Assembly,		
		or		
		Vane Cluster	2A0091CL46	(B)
		HPT, Stage 1,	(01-275)	
		Assembly		
2A2591CL47-001	20	Vane Cluster	2A2591CL47	(S1)(1D)
(72-44-20)		HPT, Stage 1,	(01-276)	(A)(C)
		Assembly,		
		or		
		Vane Cluster	2A0091CL47	(B)

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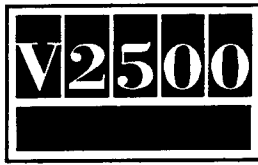


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2A2591CL48-001 (72-44-20)	20	HPT, Stage 1, (01-276) Assembly Vane Cluster 2A2591CL48 HPT, Stage 1, (01-277) Assembly,	(S1)(1D) (A)(C)
		or Vane Cluster 2A0091CL48 HPT, Stage 1, (01-277) Assembly	(B)
2A2591CL48-5- 001 (72-44-20)	20	Vane Cluster 2A2591CL48-5 HPT, Stage 1, (01-278) Assembly,	(S1)(1D) (A)(B)
		or Vane Cluster 2A0091CL48-5 HPT, Stage 1, (01-278) Assembly	(B)
2A2591CL49-001 001 (72-44-20)	20	Vane Cluster 2A2591CL49 HPT, Stage 1, (01-279) Assembly,	(S1)(1D) (A)(C)
		or Vane Cluster 2A0091CL49 HPT, Stage 1, (01-279) Assembly	(B)
2A2591CL49-5 001 (72-44-20)	20	Vane Cluster 2A2591CL49-5 HPT, Stage 1, (01-280) Assembly,	(S1)(1D) (A)(B)
		or Vane Cluster 2A0091CL49-5 HPT, Stage 1, (01-280) Assembly	(B)
2A2591CL47-5 001 (72-44-20)	20	Vane Cluster 2A2591CL47-5 HPT, Stage 1, (01-282) Assembly,	(S1)(1D) (A)(B)
		Vane Cluster 2A2591CL50 HPT, Stage 1, (01-284) Assembly,	(S1)(1D) (A)(C)
2A2591CL50-5- 001 (72-44-20)	20	Vane Cluster 2A2591CL50-5 HPT, Stage 1, (01-284) Assembly,	(S1)(1D) (A)(C)
		Vane Cluster 2A2591CL51 HPT, Stage 1, (01-286) Assembly,	(S1)(1D) (A)(B)

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C. Consumable Materials

D. Instructions/Disposition Code Statements:

- (S1) Old and New Parts are freely and fully interchangeable
- (1D) You can obtain the new part by modification of the old part and identification to the new part number.
- (A) The new part is obtained by identification in the field and is not supplied by spares.
- (B) The old part will no longer be supplied.
- (C) The old part 2A2591 will continue to be supplied.

NOTE: The estimated 1998 unit prices shown are provided for planning purposes only and do not constitute a firm quotation. Consult the IAE Price Catalog or contact IAE's Spare Parts Sales Department for information concerning firm prices.



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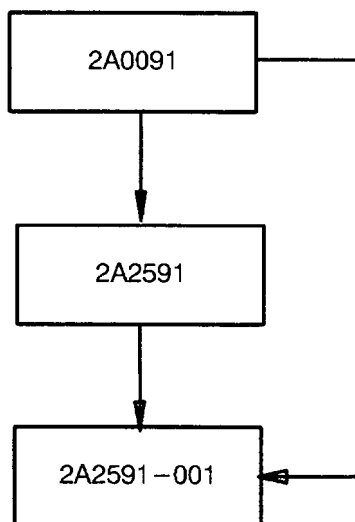
MODIFICATIONS

BASE LINE

V2500-ENG-70-0188
INFORMATION - ENGINE - TO
ANNOUNCE NEW STAGE 1
TURBINE VANE ASSEMBLIES

V2500-ENG-72-0312
ENGINE - STAGE 1 HIGH PRESSURE
TURBINE VANE CLUSTER ASSEMBLIES -
PROVIDE A MODIFICATION OF THE
STAGE 1 HPT VANE CLUSTER
ASSEMBLIES

PART NUMBER CHANGE



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de000e7933

Family Tree - Stage 1 High Pressure Turbine Vanue Cluster Assembly Ref. Catalog
Sequence No. 72-44-20. Fig. 01 Items 250 Through 286
Fig.2

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International Aero Engines

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