V2500 International Aero Engines
SERVICE BULLETIN

ENGINE - HP TURBINE ROTOR AND STATOR ASSEMBLY - PROVIDE A NEW ORIFICE PLATE WITH AN INCREASED OPENING SIZE

MODEL APPLICATION

V2527-A5
V2530-A5
V2525-D5
V2528-D5

BULLETIN INDEX LOCATOR

72-45-00

Compliance Category Code

4

Internal Reference No.

95VA021A

Aug.15/96

1. Planning Information

A. Effectivity

(1) Aircraft: Airbus A320, A321

McDonnell Douglas MD-90

(2) Engine: V2527-A5 Engines before Serial No V10192
V2530-A5 Engines before Serial No V10192
V2525-D5 Engines before Serial No. V20073
V2528-D5 Engines before Serial No. V20073

CAUTION: FAILURE TO INCORPORATE THE INCREASED FLOW ORIFICE AT THE FIRST OPPORTUNITY CAN RESULT IN HIGHER OPERATING TEMPERATURES IN THE AREA OF THE HIGH PRESSURE TURBINE SECOND STAGE AIR SEAL. THIS CAN LEAD TO THE LONG TERM PREMATURE REPLACEMENT OF THE AIR SEAL AND SECOND STAGE DISK DUE TO FAILURE TO MEET ENGINE MANUAL INSPECTION REQUIREMENTS.

B. Reason

(1) Condition:

Potentially high operating temperatures in the front and rear knife edge cavities of the high pressure turbine second stage airseal.

(2) Background:

The possibility of increased high pressure turbine second stage airseal knife edge clearances in overhauled engines can lead to ingestion of hot, flowpath gases into the front and rear air seal cavities. This hot flowpath gas increases the operating temperatures of the second stage air seal and the second stage disk in the blade attachment area.

(3) Objective:

Increase the flow of cooling air being fed to the second stage air seal cavities through the second stage vane by increasing the size of the cooling air supply orifice. This will eliminate the hot gas ingestion and reduce the operating temperatures of the second stage air seal and disk.

(4) Substantiation

Satisfactorily completed by structural analytical review.

(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

(6) Supplemental Information

C. Description

(1) Replace the orifice plates with orifice plates that have an increased size.

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 4

Accomplish at the first visit of an engine or module to a maintenance base capable of compliance with the accomplishment instructions regardless of the planned maintenance action or the reason for engine removal.

F. Manpower

Estimated Manhours to incorporate the full intent of this Bulletin:

Venue	Estimated Manhours
(1) In service	Not Applicable
(2) At overhaul	1 hour 8 minutes

NOTE: The parts affected by this Service Bulletin are accessible at overhaul.

(a) To make modification to the Orifice Plates (4 off).	60 minutes
(b) To identify the Orifice Plate	8 minutes
TOTAL:	1 hour 8 minutes

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)

J. Electrical Load Data

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

K. References

(1) The V2500 Engine Manual (E-V2500-1I-A), Chapter/Section 72-45-20.

(2) The V2500 Engine Manual (E-V2500-3I-A), Chapter/Section 72-45-20.

(3) The V2500 Engine Illustrated Parts Catalogs (S-V2500-2IA and S-V2500-3IA), Chapter/Section 72-45-21.

(4) The V2500 Standard Practices/Processes Manual (SPP-V2500-1IA), Chapter/Section 70-09-00.

L. Other Publications Affected

(1) The V2500 Engine Illustrated Parts Catalog (S-V2500-2IA) Chapter/Section 72-45-21 to add the new part.

(2) The V2500 Engine Illustrated Parts Catalog (S-V2500-3IA) Chapter/Section 72-45-21 to add the new part.

2. Accomplishment Instructions

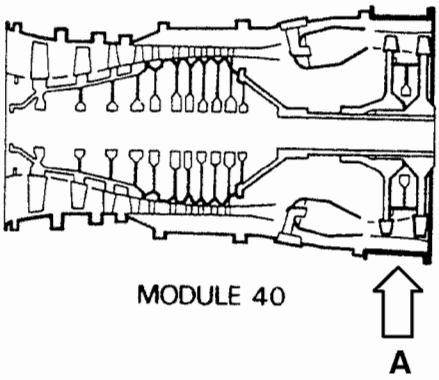
A. Rework Instructions

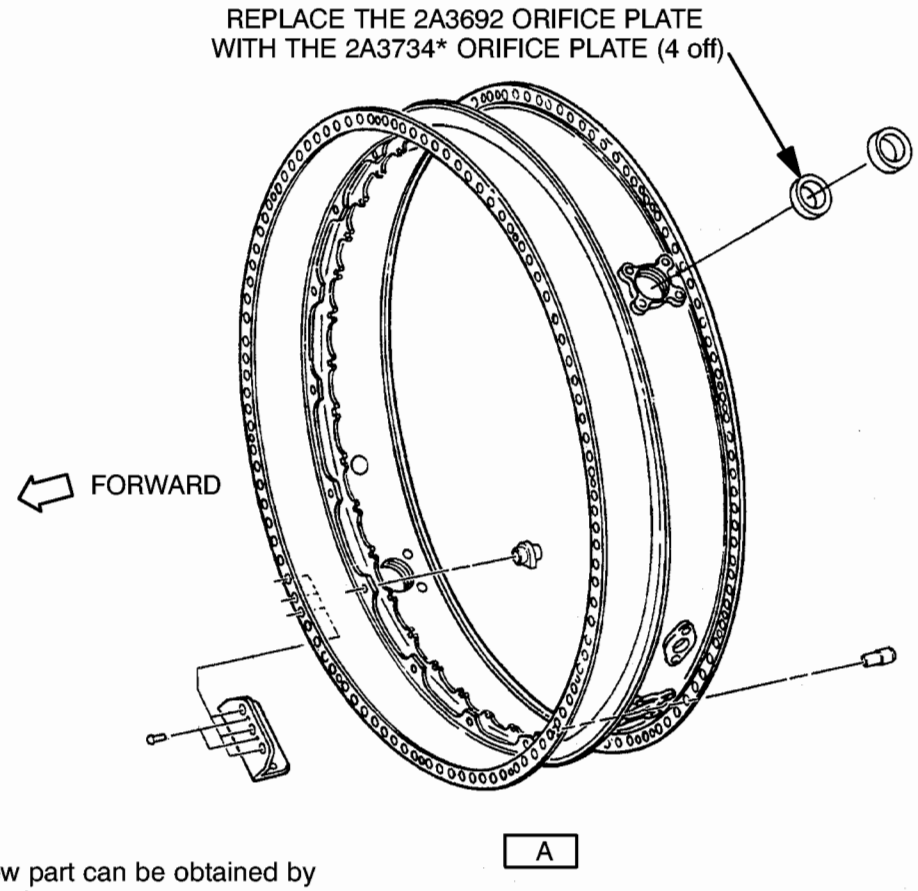
(1) Do a modification of the 2A3692 Orifice Plate (4 off). See Reference (3) or (4), 72-45-21 Figure/Item No. 01-100).

	Procedure	Supplementary Information
(a)	Set-up and machine to open the 0.835-0.845 in. (21,21-21,46 mm) diameter to 0.870 - 0.880 in. (22,10 - 22,35 mm) diameter.	Refer to Figure 1.
1	Hold concentric to the outside diameter 0.010 in. (0.254 mm).	
2	Break sharp edges 0.003 - 0.015 inch (0,08-0,38 mm).	
(b)	Mark the new part number adjacent to the existing part number. Use the vibration peen method.	Existing 2A3692 — New Part Number 2A3734 Refer to Reference (4), Control No./Task No. 70-09-00-400-501.

B. Install the 2A3724 Orifice Plates (4 off) by the procedure given in Reference (1), Chapter/Section 72-45-20, Assembly-02 (for V2527-A5 and V2530-A5 Engines) or Reference (2), Chapter/Section 72-45-20, Assembly-02 (for V2525-D5 and V2528-D5 Engines).

C. After you install the Orifice Plates identify the Case and Vane Assembly as 2A3215. Refer to Reference (4), Control No./Task 70-09-00-400-501.





NOTE: The new part can be obtained by modification

E7635

Location of the Orifice Plate
Figure 1

3. Material Information

A. Kit associated with this bulletin.

None

B. Parts affected by this bulletin.

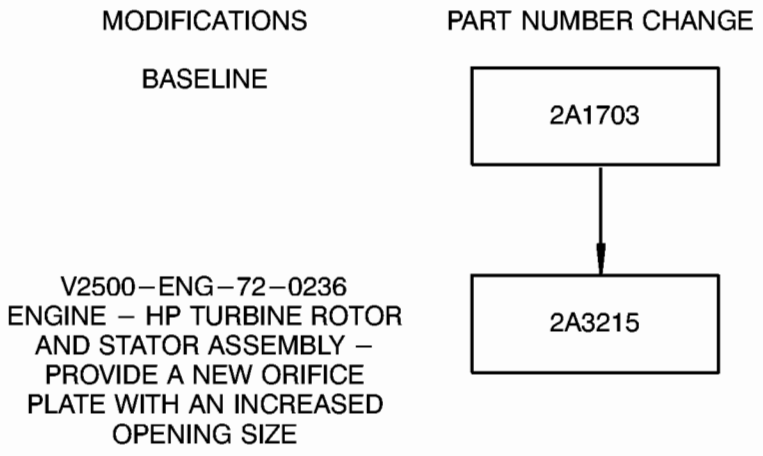
New Part No. (ATA No.)	Qty	Est'd Unit Price($)	Keyword	Old Part No. (IPC No.)	Instructions Disposition
Applicability: For each V2500 Engine to incorporate this Service Bulletin					
2A3215 (72-45-20)	1		Case & Vane Assembly	2A1703 (01-005)	(A)(C)(S1)
2A3734 (72-45-21)	4	112.00	Plate, Orifice	2A3692 (01-100)	(A)(B)(S1)(1D)

C. Consumable Materials

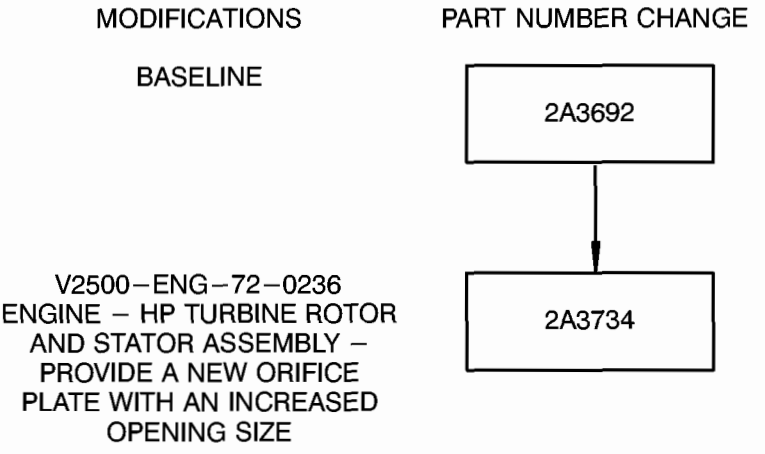
D. Instructions/Disposition Code Statements:

(S1) New parts coded (S1) must replace old parts coded (S1) as a COMPLETE SET per engine.
(1D) You can obtain the new part by modification of the old part and identification to the new part number.
(A) The old part will no longer be supplied.
(B) The new part is currently available.
(C) New part will be supplied on a lead time quotation basis only.

NOTE: The estimated 1996 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.



Family Tree - HP Turbine Case and Vane Assembly
Ref. Catalog Sequence No 72-45-20. Fig. 01 Item 005
Figure 2



Family Tree - Orifice Plate
Ref. Catalog Sequence No 72-45-21. Fig. 01 Item 100
Figure 3