International Aero Engines

SERVICE BULLETIN

ENGINE - HP COMPRESSOR SPLIT CASES - INTRODUCTION OF REVISED STAGE 5 AND 6 BOROSCOPE BLANKING PLUG WITH ADDITIONAL ATTACHING BOLT - CATEGORY CODE 6 - MOD.ENG-72-0317

1. Planning Information

A. Effectivity

(1) Aircraft:
(a) Airbus A319.
(b) Airbus A320.
(c) Airbus A321.
(d) Boeing - Douglas Product Division MD-90.

(2) Engines:
(a) V2522-A5 Engines prior to Serial No. V10475.
(b) V2524-A5 Engines prior to Serial No. V10475.
(c) V2527-A5 Engines prior to Serial No. V10475.
(d) V2527E-A5 Engines prior to Serial No. V10475.
(e) V2530-A5 Engines prior to Serial No. V10475.
(f) V2533-A5 Engines prior to Serial No. V10475.
(g) V2525-D5 Engines prior to Serial No. V20255.
(h) V2528-D5 Engines prior to Serial No. V20255.

B. Concurrent Requirements

None.

C. Reason

(1) Problem

IAE V2500 Service Bulletin ENG 72-0265 introduced a revised boroscope blanking plug for Stages 5 and 6 of the HP Compressor, secured with a single bi-hexagonal bolt. It has been found that this standard of blanking plug can deteriorate quickly. In extreme conditions the stem of the plug can break off.

The problem is caused by an air leak through the non-bolted side of the blank. This causes the stem to vibrate which causes High Cyclic Fatigue (HCF). In addition, because there is only one point of attachment, there is a higher probability of static stress being introduced to the component.

(2) Evidence

The problem was discovered during the pass-off tests for production engines.

(3) Substantiation

A satisfactory engineering analysis has been carried out on the changes introduced by this this Service Bulletin.

(4) Objective

The purpose of this Service Bulletin is to maintain engine reliability.

(5) Effect of Bulletin on:

(a) Operation

Not affected.

(b) Maintenance

Affected.

(c) Overhaul

Affected.

(d) Repair Schemes

Not affected.

(e) Interchangeability

Not affected.

(f) Fits and Clearances

Not affected.

D. Description

(1) The changes introduced are as follows:

(a) The number of bolts holes has been increased from one to two.

(b) The quantity of bolts to attach the Stage 5 and 6 boroscope blanking plug to the front case assembly of the HP Compressor has increased from one to two.

(2) The existing Stage-5 and 6 boroscope blanking-plugs can be reworked. (Refer to Section 2. and Figure 1).

E. Compliance

Category Code 6

This Service Bulletin can be accomplished when the sub-assembly (That is modules, accessories, components, build groups) is disassembled sufficiently to get access to all affected parts.

F. Approval

The part number changes and/or part modification are given in Section 2 and 3 of this Service Bulletin. They comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the engine models listed.

G. Manpower

Estimate of man-hours necessary to embody this Service Bulletin in full:

Venue		Estimated Man-Hours
(1) In Service		
(a) To gain access		12 Minutes
(b) To install new blanking plug		1 Hour 30 Minutes
(c) To return the engine to a serviceable status		15 Minutes
	Total	1 Hour 57 Minutes
(2) At Overhaul		
(a) To install the new blanking plug		1 Hour 30 Minutes
	Total	1 Hour 30 Minutes

NOTE: It is possible to get access to the parts affected by this Service Bulletin at overhaul.

H. Material - Price and Availability

(1) A modification kit is not necessary.

(2) Refer to Section 3. Material Information for the prices and availability of future spares.

I. Tooling - Price and Availability

Special tools are not necessary.

J. Weight and Balance

(1) Weight Change

None.

(2) Moment Arm

Not affected.

(3) Datum

Engine front mount centreline (Power Plant Station (PPS) 100).

K. Electrical Load Data

This Service Bulletin does not affect the aircraft electrical load.

L. References

(1) Internal Reference No.

EC98VR010

(2) Other References

This Service Bulletin replaces the IAE Service Bulletin that follows:

ENG 72-0265 ENGINE - HP COMPRESSOR SPLIT CASES - INTRODUCTION OF REVISED STAGE 5 BOROSCOPE BLANKING FEATURES

M. Other Publications Affected

(1) Aircraft Maintenance Manual (AMM), A319/A320/A321/MD-90, Chapter/Section 72-00-00, Inspection/Check.

(2) Engine Manual (EM), A1/A5/D5, Chapter/Sections 72-00-00, Cleaning, 72-41-30, Disassembly/Assembly and 72-41-31, Cleaning. Inspection/Check and Repair.

(3) Illustrated Parts Catalogue (IPC), Chapter/Section 72-41-31.

2. Accomplishment Instructions

A. Rework Instructions

(1) Consumable Materials

CoMat 06-022 Fluorescent penetrant

(2) Standard Equipment

Chemical cleaning equipment
Scribing tool
Drilling machine
Standard workshop equipment
Penetrant crack test equipment
Workshop inspection equipment
Vibro-engraving equipment

(3) Rework the part 6A6476, Boroscope blanking plug, Stage-5 and 6 (Refer to 72-41-31, Fig/Item 01-140).

Procedure	Supplementary Information
With the chemical cleaning equipment, clean the boroscope blanking plug.	Refer to the Standard Practices Manual (SPM), TASK 70-11-03-300-503.
With the scribing tool and a locally manufactured template, mark off the position of the new bolt hole.	Refer to Figure 1.
With a drilling machine with standard workshop equipment, drill the new bolt hole.	
With standard workshop equipment, remove any burrs and break off any sharp edges.	
With CoMat 06-022 fluorescent penetrant and penetrant crack test equipment, do a local penetrant crack test of the reworked area.	Refer to the Standard Practices Manual (SPM), TASK 70-23-05-230-501.
Reject the blanking plug if any cracks are found.	

With standard workshop inspection equipment, visually examine and measure the dimensions of the boroscope blanking plug.	Refer to Figure 1.
With the vibro-engraving equipment, cancel the existing part number and identify with the new part number.	Refer to the Standard Practices Manual (SPM), TASK 70-09-00-400-501, SUBTASK 70-09-00-400-001.

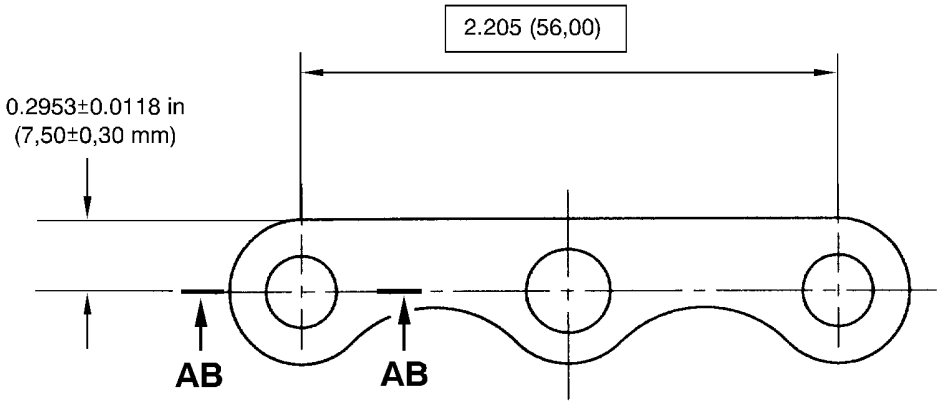
Existing	Re-number
6A6476	6A7422

B. Assembly Instructions

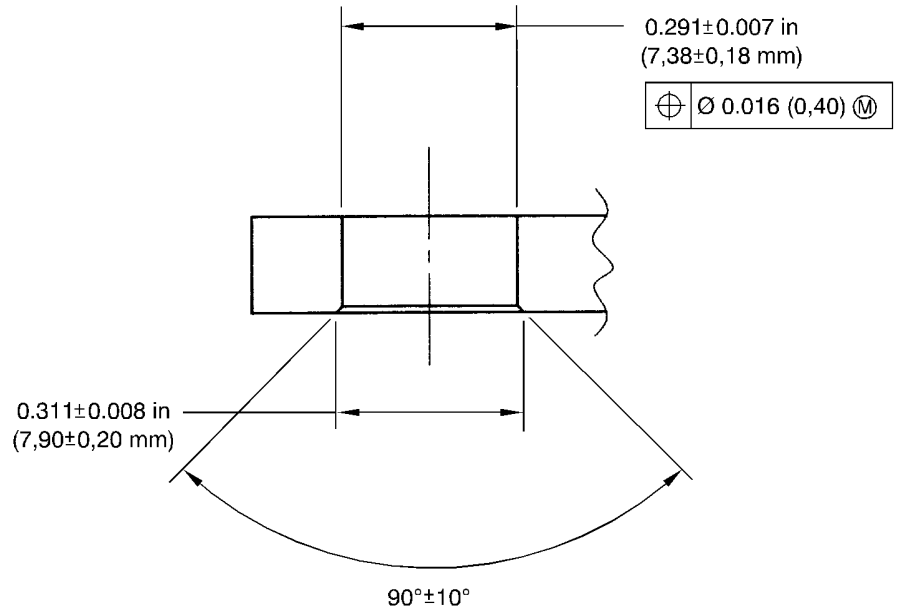
(1) For the correct removal/installation procedures, refer to the A1/A5/D5 Engine Manual (EM), Chapter/Section 72-41-30, Disassembly/Assembly.

C. Recording Instructions

A record of accomplishment is necessary.



VIEW ON UNDERSIDE OF BOROSCOPE BLANK



SECTION
AB–AB

DIMENSIONS ARE IN INCHES (MILLIMETRES)
GEOMETRIC SYMBOLS CONFORM TO ISO R1101–1969

ded0002600

Rework of the Stage-5 and 6 Boroscope blanking-plug
Fig.1

3. Material Information

Applicability: for each V2500 engine for which this Service Bulletin is applicable.

A. Kits necessary for this Service Bulletin:

None.

B. Parts affected by this Service Bulletin:

NEW PART No. (ATA No.)	QTY	EST'D UNIT PRICE ($)	PART TITLE	OLD PART No. (IPC No.)	INSTR DISP
6A7422 (72-41-31)	1	274.00	.Plug - Blanking, Stage-5 and 6 boroscope	6A6476 (01-140)	(A)(B)(S1) (1D)
AS21010 (72-41-31)	1	3.55	.Bolt, bi-hexagonal head (.250 dia x .625)	AS21010 (01-142)	(2D)

NOTE: The unit prices, if shown, are an estimate and they are given for the purpose of planning only. For information about actual prices, refer to the IAE Price Catalog or contact IAE's spare part sales department.

C. Instruction disposition codes:

(A) New part will be available from August 1998.

(B) Old part will be discontinued.

(S1) Old and new parts are not interchangeable.

(1D) Old part can be reworked and re-identified to the new part number. (Refer to Figre 1).

(2D) Quantity increased from 1 off to 2 off.