

ENGINE - FUEL AND CONTROL - LP AND HP FUEL PUMP - INTRODUCTION OF REVISED HP BEARING CUT GEOMETRY TO REDUCE FUEL PUMP RIPPLE - CATEGORY CODE 7 - MOD.ENG-73-0125

1. Planning Information

A. Effectivity

- (1) Aircraft (a) Airbus A319
 - (b) Airbus A320
 - (c) Airbus A321
- (2) Engines
- (a) V2522-A5 Engines prior to Serial No. V10412
- (b) V2524-A5 Engines prior to Serial No. V10412
- (c) V2527-A5 Engines prior to Serial No. V10412
- (d) V2527E-A5 Engines prior to Serial No. V10412
- (e) V2530-A5 Engines prior to Serial No. V10412
- (f) V2533-A5 Engines prior to Serial No. V10412

B. Concurrent Requirements

None.

C. Reason

(1) Problem

High levels of vibration have been found on in-service units.

The problem is caused by fuel pressure ripples produced by the LP/HP fuel pump. This pressure ripple flows against the normal flow of the fuel and reacts against fuel system components and produces vibration.

(2) Evidence

The problem was originally found on in-service units and was then successfully reproduced on a development engine.

(3) Substantiation

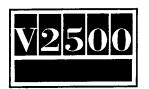
A satisfactory engineering analysis, successful vendor rig tests and development engine tests, have been done on the changes contained in this Service Bulletin.

(4) Objective

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

(5) Effect of Bulletin on:-

V2500-ENG-73-0125



(a) Operation

Not affected.

(b) Maintenance

Not affected.

(c) Overhaul

Affected.

(d) Repair Schemes

Not affected.

(e) Interchangeability

Not affected.

(f) Fits and Clearances

Not affected.

D. <u>Description</u>

- (1) The LP/HP Fuel pump has changed as follows:
 - (a) Different bearings have been installed which reduces the fuel ripple effect and thus reduces the vibration in the fuel system.
- (2) A new type number will identify the units that have this modification. (Refer to 3.B).
- (3) The initial LP/HP Fuel pump can be reworked. Refer to the vendor Service Bulletin at 1.L.

E. Compliance

CATEGORY 7.

This Service Bulletin can be embodied when there are no original parts remaining.

F. Approval

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



International Aero Engines

SERVICE BULLETIN

G. <u>Manpower</u>

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

Venue Estimated Man-hours

In Service Not applicable

At overhaul No more time is necessary to do this Service Bulletin.

<\TAB>

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 3. Material Information for prices and availability of spares.

I. Tooling - Price and Availability

Special tools are not necessary.

J. Weight and Balance

(1) Weight Change

None.

(2) Moment Arm

No effect.

(3) Datum

Engine front mount centreline - Power Plant Station (PPS100).

K. Electrical Load Data

(1) The aircraft electrical load is not affected by this Service Bulletin.

L. References

(1) Internal Reference No.

EC97VI011

(2) Other References

V2500-ENG-73-0125



International Aero Engines

SERVICE BULLETIN

Refer to Teijin Seiki vendor Service Bulletin: 5009913-73-004 ENGINE - FUEL AND CONTROL - REPLACEMENT OF LP/HP FUEL PUMP BEARINGS.

Airbus Aircraft Modification No.21820

M. Other Publications Affected

- (1) Illustrated Parts Catalog, Chapter/Section 73-12-41.
- (2) Vendor Component Maintenance Manual (VCMM), Chapter/Section, 73-18-41.



International Aero Engines

SERVICE BULLETIN

2. Accomplishment Instructions

- A. Rework Instructions
 - (1) Refer to 1.L. for the vendor Service Bulletin
- B. Assembly Instructions
 - (1) For the correct Removal/Installation procedures refer to:
 - (a) The A5 Engine Manual (EM), Chapter/Section 72-00-60, Removal-12/Installation-12.

or

- (b) The A319/A320/A321 Aircraft Maintenance Manual (AMM), Chapter/Section, 73-12-41, Removal/Installation.
- C. Recording Instructions
 - (1) A record of accomplishment is necessary. Refer to 1.L. for the vendor Service Bulletin.



3. Material Information

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

A. Kits necessary for this Service Bulletin:

None.

B. Vendor unit affected by this Service Bulletin:

NEW PART No. (ATA No.)	QTY	EST'D UNIT PRICE (\$)	PART TITLE	OLD PART No. (IPC No.)	INSTR DISP
5009913E (73-12-41)	1		Pump, Fuel LP/HP (VS4980)	5009913b (01-100)	(A)(S1)

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 parts sales department.

C. <u>Instruction/Disposition Codes:</u>

- (A) New unit is available.
- (S1) Old units are freely and fully interchangeable both physically and functionally.



NO. 5009913-73-004

ENGINE - FUEL AND CONTROL - REPLACEMENT OF LP/HP FUEL PUMPS BEARINGS

PLANNING INFORMATION

A. EFFECTIVITY

- (1) Aircrafts:
 - (a) Airbus A319
 - (b) Airbus A320
 - (c) Airbus A321
- (2) Engines: V2500-A5 Engine
- (3) Pumps:

IAE PART NUMBER TS/STS PART NUMBER

5L0068 5009913C *1 5L0071 5009913D *2

- NOTE: *1: This Service Bulletin must be incorporated after or concurrently with the STS Service Bulletin No. STS-73-001 (Engine Fuel and Control Replacement of LP/HP Fuel Pumps, Face Seal Assembly and O-Rings).
 - *2: Indicated are pumps incorporated STS Service Bulletin No. STS-73-002 (Engine Fuel and Control Modification of LP/HP Fuel Pumps, Impeller/Inducer).

B. REASON

To reduce the A5 pump inlet ripple to the same level as the A1 pump in the 2900 Hz range and hence reduce the engine accessories vibration.

C. DESCRIPTION

(1) This Bulletin gives instructions necessary to remove the presently installed bearings, replace those and assemble the LP/HP Fuel Pump with the replaced bearings.



(2)	This Service Bulletin describes two options to accomplish the modification of the 1	LP/HF
	Fuel Pump.	

(a) Option 1:

Operators who wish to accomplish the modification in the shop by

replacing bearings.

(b) Option 2:

Operators who wish to have the modification accomplished by

Sundstrand Aerospace.

D. APPROVAL

This Service Bulletin has been technically agreed by IAE.

E. COMPLIANCE

Category Code 7

Accomplish when supply of superseded parts has been depleted.

F. MANPOWER

Approximately 10 man-hours will be required to perform this modification.

G. MATERIAL - PRICE AND AVAILABILITY

- (1) Description of Product Improvement:
 - (a) Price for the modification:
 - 1 To replace the pump bearings: \$ 9,300.00
 - If multiple Service Bulletins are incorporated at the same time, the price will be adjusted.

NOTE: All of the above are subject to escalation.



(2) Availability:

(a) Option 1:

Operators who wish to accomplish the modification in the shop by replacing bearings;

New parts required to accomplish this Service Bulletin are listed in Section 3 in this Bulletin.

Material Information are available at prices and lead time indicated.

An order for spare parts should be addressed to:

Sundstrand Aerospace Sundstrand Corporation 4747 Harrison Avenue. P. O. Box 7002 Rockford. Illinois 61125-7002 U. S. A.

(For the attention of Manager, Business Operations, Department No. 890-6)

Telephone: 1-800-622-3199 or 815-226-6481

Telex: 25-7440 Twx: 910-631-4255 SITA: RFDSUXD

Telecopy: 815-226-2624

(b) Option 2:

Operators who wish to have the modification accomplished by Sundstrand Aerospace;

Accomplishment of this Service Bulletin will be completed based on Sundstrand Aerospace standard terms, and prices of sale pertaining to commercial contract Sundstrand Aerospace Business Operations Manager which is mentioned in the above address for information concerning firm quotation.

H. TOOLING PRICE AND AVAILABILITY

No additional tooling other than that required for shop maintenance of the LP/HP Fuel Pump is required to accomplish this Service Bulletin.

WEIGHT AND BALANCE

None.



J. ELECTRICAL LOAD DATA

Not affected.

K. REFERENCES

- (1) STS Component Maintenance Manual (CMM) 73-18-41.
- (2) IAE Engineering Change No. 97VI011.

IAE Service Bulletin No. V2500-ENG-73-0125.

L. OTHER PUBLICATIONS AFFECTED

STS Component Maintenance Manual (CMM) 73-18-41 will be revised to incorporate this Bulletin.

2. ACCOMPLISHMENT INSTRUCTIONS

A. DISASSEMBLY

Disassemble the pump in accordance with approved procedures in CMM in REFERENCE (1) to the extent necessary to get the bearings (450, 520 and 530, IPL Figure 1, CMM 73-18-41).

B. MODIFICATION

Replace the bearings (450, 520 and 530, IPL Figure 1, CMM 73-18-41).

REF	PLACE WITH		APPLICATION FOR PUMPS
P/N	KEYWORD	EXISTING P/N	TS/STS PART NO.
767440	Bearing, Drive, Pressure - Loaded	5009957	5009913C 5009913D
767441	Bearing, Driven, Pressure - Loaded	5009958	
767442	Bearing Set, Drive, Stationary, Matched	5009954	



C. ASSEMBLY

CAUTION: APPLY TORQUE PRESCRIBED ON CMM ABOVE RUN ON TORQUE.

(1) Assemble the pump in accordance with approved procedures in CMM in REFERENCE (1) with a replaced bearings.

D. IDENTIFICATION

- (1) After re-assembly of the pump, using a vibro peen or routing, mark out the letter following the 7-digit part number and IAE part number marked in the TS/STS P/N and IAE P/N block of the identification plate (590, IPL Figure 1, CMM 73-18-41).
- (2) Using a vibro peen or routing, change the letter following the 7-digit part number and IAE part number according to below:

CHA	ANGE TO	EXISTING PART NO.		
TS/STS		TS/STS		
PART NO.	IAE PART NO.	PART NO.	IAE PART NO.	
*1 5009913E	N/A	5009913C	5L0068	
5009913E	N/A	5009913D	5L0071	

NOTE *1: Service Bulletin 5009913-73-004 should be applied together with STS-73-002, then, new part number shall be 5009913E.

E. TEST

Test the Fuel Pump assembly according to the applicable CMM.



MATERIAL INFORMATION 3.

APPLICABILITY: For each pumps TS/STS P/N 5009913C and 5009913D, that is installed on V2500-A5 engines and the spare pumps to incorporate this Bulletin.

A. KITS ASSOCIATED WITH THIS BULLETIN

None.

B. PARTS AFFECTED BY THIS SERVICE BULLETIN

NEW P/N	QTY PER UNIT	UNIT LIST PRICE	KEYWORD	OLD P/N	DISPOSITION/ INSTRUCTION
*1 5009913E	RF	N/A	LP/HP Fuel Pump	5009913C IAE P/N 5L0068	Modify
5009913E	RF	N/A	LP/HP Fuel Pump	5009913D IAE P/N 5L0071	Modify
767440	1	*2	. Bearing, Drive, Pressure - Loaded	5009957	Replace (A) (B) (S1)
767441	1	*2	. Bearing, Driven, Pressure - Loaded	5009958	Replace (A) (B) (S1)
767442	1	*2	. Bearing Set, Drive, Stationary, Matched	5009954	Replace (A) (B) (S1)

- NOTE *1: Service Bulletin 5009913-73-004 should be applied together with STS-73-002, then, new part number shall be 5009913E.
 - *2: Contact the Sundstrand's Business Operations Manager for the information concerning prices and lead time.

C. DISPOSITION/INSTRUCTION CODE STATEMENT

- (A) New part is currently available.
- (B) Old part is no longer available for sale.
- (S1) New parts coded (S1) must replace old parts coded (S1) in a COMPLETE SET per Unit.

Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).