



ENGINE - FUEL AND CONTROL - REPLACE THE FUEL PUMP PACKINGS WITH PACKINGS MADE FROM
IMPROVED MATERIAL - CATEGORY CODE 6 - MOD.ENG-73-0067

1. Planning Information

A. Effectivity

- (1) Aircraft : (a) Airbus A320
(b) Airbus A321
(c) McDonnell Douglas MD-90
- (2) Engine : (a) V2500-A1 Engines prior to Serial No. V0362.
(b) V2527-A5 Engines prior to Serial No. V10117 *
(c) V2530-A5 Engines prior to Serial No. V10117 *
(d) V2525-D5 Engines prior to Serial No. V20026 *
(e) V2538-D5 Engines prior to Serial No. V20026 *

* The Serial Number data shown is of a preliminary nature and is provided for advanced planning only.
A future revision to this Service Bulletin will confirm final serial number effectivity.

B. Concurrent Requirements

This Service Bulletin must be incorporated before or concurrently with the IAE Service Bulletin No. V2500-ENG-73-0068.

C. Reason

(1) Condition

Inspection on several returned units from operators revealed deterioration (Compression Set) on fluorosilicone packings which are installed to the input shaft of the LP/HP Fuel Pump.

(2) Background

It was highlighted that the fluorosilicone packing was deteriorated under high temperature condition, and this deterioration may cause a fuel leakage.

(3) Objective

The material of packings is to be changed from fluorosilicone to fluorocarbon for these packings of the LP/HP Fuel Pump, in order to improve unit reliability and durability.

(4) Substantiation

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Substantiation testing has been successfully completed.

(5) Effect 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

None.

D. Description

- (1) This Service Bulletin must be incorporated before or concurrently with the IAE Service Bulletin No. V2500-ENG-73-0068.
- (2) This Service Bulletin covers the fitment to engines of the Fuel Pump incorporating STS Corporation (STS) Service Bulletin No. STS-73-001.
- (3) The existing Fuel Pump can be modified in accordance with STS Service Bulletin No. STS-73-001.
- (4) This Service Bulletin describes two parts in paragraph B of the "Accomplishment Instruction" portion to accomplish the modification of the Fuel Pump and detail as follows:
 - (a) Part 1 : Operators who wish to accomplish the modification.
 - (b) Part 2 : Operators who wish to accomplish the modification by vendor.
- (5) The material of two packings and packing of face seal assembly will be changed from fluorosilicone to fluorocarbon with accomplishment instruction given in the STS Service Bulletin No. STS-73-001.

E. Approval

The part number changes described in this Bulletin have been shown to comply with the applicable Federal Aviation Regulation and are FAA-APPROVED for Engine Model listed.

F. Compliance

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Accomplishment when subassembly (i.e. Modules, Accessories, Components, Build Groups) is disassembled sufficiently to afford access to the affected part and to all affected spare subassemblies.

G. Manpower

Estimated Manhours to incorporate the full intent of this Bulletin:

Venue	Estimated Manhours
(1) In Service	Not affected
(2) At Overhaul	Not affected

H. Weight and Balance

(1) Weight change	None
(2) Moment arm	No effect
(3) Datum	Engine front mount centerline (Power Plant Station - PPS 100)

I. Electrical Load Data

Not affected

J. Reference

(1) Internal Reference No.

EC94VJ049

(2) Other References

IAE Power Plant Illustrated Parts Catalog.

STS Service Bulletin No. STS-73-001, "Engine Fuel Control - Replacement of LP/HP Fuel Pumps Face Seal Assembly and O-Ring which is installed on the upper side of the Face Seal Assembly".

IAE Service Bulletin No. V2500-ENG-73-0068 " Engine - Fuel and Control-Introduction of an improved fuel pump".

A320 Engine Maintenance Manual.

A321 Engine Maintenance Manual.

MD-90 Engine Maintenance Manual.

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K. Other Publications Affected

- (1) IAE Engine Illustrated Parts Catalog, Chapter/Section 73-12-41.
- (2) IAE Power Plant Illustrated Parts Catalog, Chapter/Section 73-12-41 (V2500-A1 and V2500-A5) and 73-12-01 (V2500-D5).
- (3) STS Component Maintenance Manual, Chapter/Section 73-12-41 (V2500-A1), 73-18-41 (V2500-A5) and 73-18-42 (V2500-D5).

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2. Accomplishment Instruction

This service Bulletin must be incorporated before or concurrently with the IAE Service Bulletin No. V2500-ENG-73-0068.

A. Rework Instructions

(1) V2500-A1, V2500-A5 and V2500-D5 Engines

(a) Part 1 : Operators who wish to accomplish the modification.

- 1 Replace the existing Face Seal Assembly and two packings with a new Face Seal Assembly and new packings which are installed the input shaft, and the approved procedures is in Reference (2).

(b) Part 2 : Operators who wish to accomplish the modification by vendor.

- 1 Return the LP/HP Fuel Pump to vendor for modification and reidentification in accordance with STS Service Bulletin No. STS-73-001.

B. Record Instructions

A record of accomplishment is necessary.



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3. Material Information

Applicability: For all V2500 engine to incorporate this Bulletin and this Service Bulletin must be incorporated before of concurrently with the IAE Service Bulletin No. V2500-ENG-73-0068.

A. Parts affected by this Bulletin:

New Part No. (ATA No.)	Qty	Est'd Unit Price (\$)	Keyword	Old Part No. (IPC No.)	Instructions Disposition
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For V2500-A1 Engines:

5L0067 (73-12-41)	1		.Pump, Fuel LP/HP	5L0017 (01-100)	(A)(B)(C) (S1)(1D)
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For V2527-A5 and V2530-A5 Engines:

5L0068 (73-12-41)	1		.Pump Fuel LP/HP	5L0050 (01-500)	(A)(B)(D) (S1)(1D)
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For V2525-D5 and V2528-D5 Engines:

5L0069 (73-12-41)	1		.Pump Fuel LP/HP	5L0063 (01-100)	(A)(B)(E) (S1)(1D)
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B. Instruction/Disposition Code Statements:

- (A) New part is currently available for sale.
- (B) Old part will no longer be available.
- (C) New vendor P/N 5008735E (Old vendor P/N 5008735D).
- (D) New vendor P/N 5009913C (Old vendor P/N 5009913B).
- (E) New vendor P/N 5010216C (Old vendor P/N 5010216C).
- (S1) Old and new parts are freely and full interchangeable both physically and functionally.
- (1D) Old part can be modified to new part at the On-Wing maintenance in accordance with STS Service Bulletin No. STS-73-001.

NOTE: Contact the "STS Product Support Manager" for information concerning firm prices. (Refer to STS Service Bulletin No. STS-73-001).

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NO. STS-73-001

ENGINE - FUEL AND CONTROL - REPLACEMENT OF LP/HP FUEL PUMPS FACE SEAL
ASSEMBLY AND O-RINGS

1. PLANNING INFORMATION

A. EFFECTIVITY

(1) Aircrafts:

(a) Airbus A320

(b) Airbus A321

(c) McDonnell Douglas MD-90

(2) Engines:

(a) V2500-A1 Engine

(b) V2500-A5 Engine

(c) V2500-D5 Engine

(3) Pumps:

(a) For V2500-A1 Engine:

IAE Part Number: 5L0017

STS Part Number: 5008735D

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(b) For V2500-A5 Engine:
IAE Part Number: 5L0050
STS Part Number: 5009913B

(c) For V2500-D5 Engine:
IAE Part Number: 5L0063
STS Part Number: 5010216C

NOTE: This Service Bulletin must be incorporated before or concurrently with the STS Service Bulletin No. STS-73-002 (Engine Fuel and Control - Modification of LP/HP Fuel Pumps Impeller/Inducer).

B. REASON

(1) Problem:

Inspection on several returned units from operators due to static leakage revealed deterioration (Compression Set) on fluorosilicone packings which are installed the input shaft of the LP/HP Fuel Pump.

(2) Cause:

The Face Seal Assembly includes internal and external O-Rings and one O-Ring installed on input shaft. These were made of Fluorosilicone and deteriorated under high temperature

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condition. The O-Rings swell and take a permanent compression set. When boost pressure on the pump was cut off at room temperature, the O-Ring then reduces in size but still compresses and looses its squeeze and hence leaks.

(3) Solution:

Replace the currently required Face Seal Assembly and O-Rings with a new Face Seal Assembly part number (P/N 5910350) and new O-Rings (P/N M83248/1-116 and P/N M83248/1-130) as shown in the following.

Pump Part Number	type of pump	Part Name	Existing Part Number	New Part Number
5008735D (5L0017)	A1	Face Seal Assembly	5905486	5910350
		O-Ring	M25988/1-116	M83248/1-116
		O-Ring	M25988/1-130	M83248/1-130
5009913B (5L0050)	A5	Face Seal Assembly	5905486A	5910350
		O-Ring	M25988/1-116	M83248/1-116
		O-Ring	M25988/1-130	M83248/1-130
5010216C (5L0063)	D5	Face Seal Assembly	5905486A	5910350
		O-Ring	M25988/1-116	M83248/1-116
		O-Ring	M25988/1-130	M83248/1-130

A Fluorocarbon O-Ring which has less swell than Fluorosilicone does not take a compression set.

This feature will eliminate the potential external leakage.

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C. DESCRIPTION

- (1) This Service Bulletin gives instructions necessary to replace the Face Seal Assembly and O-Rings with a new Face Seal Assembly and O-Rings.
- (2) This Service Bulletin describes two options to accomplish the replacements of the Face Seal Assembly and O-Rings.

(a) Option 1: Operators who wish to replace Face Seal Assembly and O-Rings.

(b) Option 2: Operators who wish to have the replacements accomplished by Sundstrand Aerospace.

Sundstrand Aerospace
Sundstrand Corporation

D. COMPLIANCE

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Accomplish when the fuel pump is removed from the engine or module.

E. APPROVAL

This Service Bulletin has been technically agreed by IAE.

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F. MANPOWER

Approximately 2.5 man-hours are required to do this replacement if the input shaft Face Seal Assembly and O-Rings are replaced to new one. A new part number is marked on Name Plate P/N 5008471 for STS pump assembly P/N 5008735E (IAE P/N 5L0067) or STS pump assembly P/N 5009913C (IAE P/N 5L0068) or STS pump assembly P/N 5010216D (IAE P/N 5L0069) and a static leak test is performed.

G. MATERIAL - COST AND AVAILABILITY

(1) Option 1:

Operators who wish to replace Face Seal Assembly and O-Rings;

Replacement parts are presently available in limited quantities. Operators approved by Sundstrand Aerospace to perform replacement on units should place a single order to Sundstrand Aerospace for their fleet requirements, noting the service bulletin number and serial numbers of effected units, total quantity of parts, and anticipated incorporation schedule (refer to paragraph 3. for parts breakdown). Sundstrand Aerospace will acknowledge the operator order with an established delivery rate.

New parts required to accomplish this Service Bulletin should be procured as Face Seal Assembly and O-Rings listed in Section 3 from the following address.

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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

(2) Option 2:

Operators who wish to have the replacements 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

Special tools are not required to accomplish this Service
Bulletin.

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I. WEIGHT AND BALANCE

Not affected.

J. ELECTRICAL LOAD DATA

Not affected.

K. REFERENCES

(1) STS Component Maintenance Manuals (CMM) 73-12-41 (for A1 type pump), 73-18-41 (for A5 type pump) and 73-18-42 (for D5 type pump).

(2) IAE Engineering Change No. 94VJ049
IAE Service Bulletin No. V2500-ENG-73-0067

L. OTHER PUBLICATIONS AFFECTED

STS Component Maintenance Manuals (CMM) 73-12-41 (for A1 type pump), 73-18-41 (for A5 type pump) and 73-18-42 (for D5 type pump) will be revised to incorporate this Service Bulletin.

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2. ACCOMPLISHMENT INSTRUCTIONS

A. DISASSEMBLY

Disassemble the pump (refer to the Figure 1, Input shaft sealing portion of this Service Bulletin) in accordance with the following instructions to get the Face Seal Assembly (550, IPL Figure 1, 73-12-41; 570, IPL Figure 1, 73-18-41; 600, IPL Figure 1, 73-18-42) and O-Rings (50 and 560, IPL Figure 1, 73-12-41; 50 and 580, IPL Figure 1, 73-18-41; 50 and 610, IPL Figure 1, 73-18-42).

- (1) Remove the screws (A), washers (B), seal retaining plate (C), and input shaft (D) from the pump.
- (2) Remove the face seal assembly (E) and packing (F) from the pump.
- (3) Remove the packing (G) from the input shaft (D).
- (4) Discard the face seal assembly (E) and packings (F and G).

B. INSPECTION

Visual check mating surface on end of drive gear. There shall be no radial or spiral scratches on the surface. If there are radial or spiral scratches on the surface, the pump should be returned for repair.

Clean off any carbon or coke on surface with cleaner, take care not to scratch sealing surface.

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C. REPLACEMENT

Replace the Face Seal Assembly (550, IPL Figure 1, 73-12-41; 570, IPL Figure 1, 73-18-41; 600, IPL Figure 1, 73-18-42) and O-Rings (50 and 560, IPL Figure 1, 73-12-41; 50 and 580, IPL Figure 1, 73-18-41; 50 and 610, IPL Figure 1, 73-18-42). Refer to the Figure 1, Input shaft sealing portion of this Service Bulletin.

D. ASSEMBLY

Assemble the pump in accordance with the following instructions (refer to the Figure 1, Input shaft sealing portion of this service bulletin) with a new Face Seal Assembly and new O-Rings of Fluorocarbon.

- (1) Install the packing (F) and the face seal assembly (E) in the pump.

NOTE: Pay attention that carbon face of the face seal assembly (E) to be facing toward drive gear.

- (2) Install the packing (G) on the input shaft (D).
- (3) Install the input shaft (D) and the seal retaining plate (C). Attach with the screws (20) and washers (B). Torque screws to 51 to 56 in-lbs. (5.76 to 6.32 Newton metres).

NOTE: Apply a small amount of vaseline (commercially available), when the O-Rings are installed to the input shaft and pump.

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E. IDENTIFICATION

- (1) After replacement of the Face Seal Assembly and O-Rings, using a vibro peen or routing, mark out the letter following the 7-digit part number and IAE part number marked in the STS P/N and IAE P/N block of the identification plate (570, IPL Figure 1, 73-12-41; 590, IPL Figure 1, 73-18-41; 620, IPL Figure 1, 73-18-42).
- (2) Using a vibro peen or routing, change the letter following the 7-digit part number and IAE part number according to below:

<u>Existing part number</u>		<u>Change to</u>	
<u>STS Part No.</u>	<u>IAE Part No.</u>	<u>STS Part No.</u>	<u>IAE Part No.</u>
5008735D	5L0017	5008735E	5L0067
5009913B	5L0050	5009913C	5L0068
5010216C	5L0063	5010216D	5L0069

F. TEST

- (1) Repair at Sundstrand:

Test the pump assembly according to the applicable CMM.

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(2) Repair performed by operator:

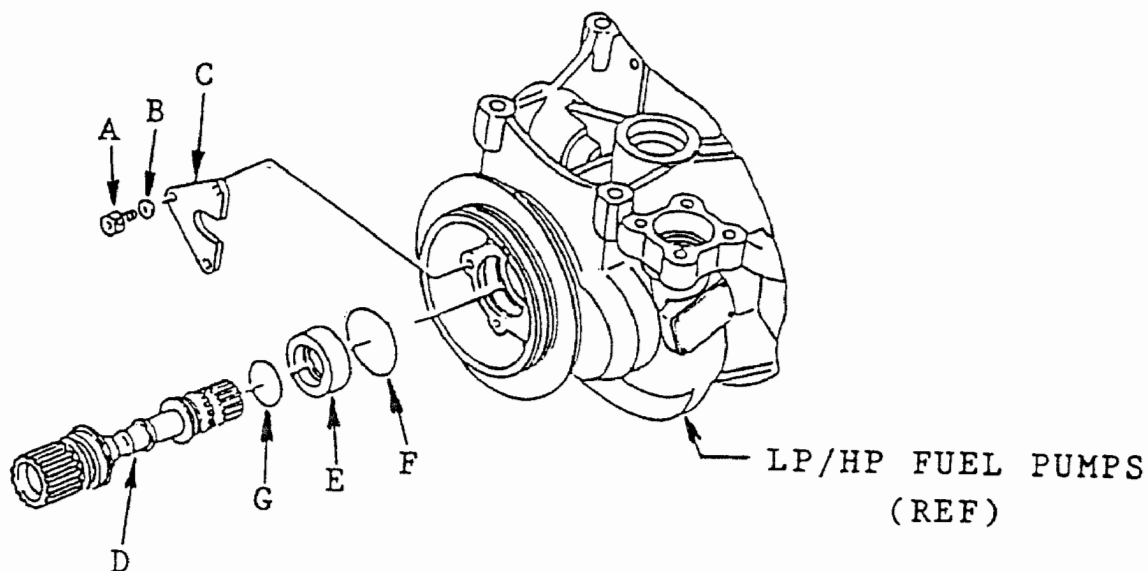
Provided only the Face Seal Assembly and O-Rings have been replaced an engine leak test is all that is required. This can be performed at idle speed with boost pumps on, for 10 minutes. The seal may leak initially but should stop. If leakage continues then the pump should be returned for repair of the mating face.

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INDEX NO.	NOMENCLATURE	CMM 73-12-41 ITEM NO.	CMM 73-18-41 ITEM NO.	CMM 73-18-42 ITEM NO.
A	SCREW	20	20	20
B	WASHER	30	30	30
C	PLATE	10	10	10
D	INPUT SHAFT	40	40	40
E	FACE SEAL	550	570	600
F	PACKING	560	580	610
G	PACKING	50	50	50

Figure 1
Input shaft sealing portion

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3. MATERIAL INFORMATION

A. APPLICABILITY

To be applied for each STS P/N 5008735D (IAE P/N 5L0017) pump, STS P/N 5009913B (IAE P/N 5L0050) and STS P/N 5010216C (IAE P/N 5L0063), that is installed on V2500-A1, V2500-A5 or V2500-D5 engine respectively and the spare pumps.

B. PARTS AFFECTED BY THIS SERVICE BULLETIN

New	Qty	Unit		Old	Disposition/
<u>P/N</u>	<u>Unit</u>	<u>Price</u>	<u>Keyword</u>	<u>P/N</u>	<u>Instruction</u>
5008735E RF (5L0067)		N/A	LP/HP Fuel Pump	5008735D (5L0017)	Replace. For A1 pump
5009913C RF (5L0068)		N/A	LP/HP Fuel Pump	5009913B (5L0050)	Replace. For A5 pump
5010216D RF (5L0069)		N/A	LP/HP Fuel Pump	5010216C (5L0063)	Replace. For D5 pump
5910350	1	*	Face Seal Assembly	5905486	Replace. For A1 pump (A) (B)

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New <u>P/N</u>	Qty <u>Unit</u>	Unit <u>Price</u>	List <u>Keyword</u>	Old <u>P/N</u>	Disposition/ <u>Instruction</u>
5910350	1	*	Face Seal Assembly	5905486A	Replace. For A5 and D5 pumps (A) (B)
M83248/ 1-116	1	*	Packing	M25988- 1-116	Replace. For A1, A5 and D5 pumps (A) (B)
M83248/ 1-130	1	*	Packing	M25988- 1-130	Replace. For A1, A5 and D5 pumps (A) (B)

NOTE: 1. N/A : Not Applicable

2. * Contact the Sundstrand Aerospace Business Operations Manager (for all operators who are located in the world except Japan) or STS Corporation (for all operators who are located in Japan) for the information concerning prices and addressed as follows:

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

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(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

C. DISPOSITION/INSTRUCTION CODE STATEMENT

(A) New part will be available for sale.

(B) Old part will no longer be available for sale.

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