

## AIR - HPT/LPT ACC VALVE ACTUATOR - INTRODUCTION OF A NEW SEAL RING TO HPT/LPT ACC VALVE ACTUATOR - CATEGORY CODE 6 - MOD.ENG-75-0059

#### 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 Number V0362

(b) V2527-A5 Engines prior to Serial Number V10175

(c) V2530-A5 Engines prior to Serial Number V10175

(d) V2525-D5 Engines prior to Serial Number V20055

(e) V2528-D5 Engines prior to Serial Number V20055

#### B. Concurrent Requirements

None

#### C. Reason

#### (1) Condition

Some operators experienced fuel leakage from drain port of HPT/LPT ACC valve actuator. Inspection on several returned units from operators revealed deterioration on fluorosilicone seal rings.

#### (2) Background

Possible HPT/LPYT ACC valve actuator drain leakage exists due to premature wear of seal rings and cap seals combination with thermal set of seal rings in hot jet fuel.

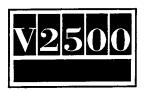
## (3) Objective

The material of seal rings is to be changed from fluorosilicone to fluorocarbon for these seal rings of the HPT/LPT ACC Valve actuator, in order to improve unit reliability and durability. At the same time, the material of cap seal is to be changed from TURCON 5 to AVALON 89 to improve wear resistance.

## (4) Substantiation

The changes introduced by this Bulletin were analytically substantiated.

(5) Effect of Bulletin on the following shop functions:



#### International Aero Engines

## SERVICE BULLETIN

Removal/Installation
Disassembly/Assembly
Cleaning
Inspection/Check
Repair
Testing

Not Affected Not Affected Not Affected Not Affected Not Affected

(6) Supplemental Information

None

#### D. <u>Description</u>

Part numbers of HPT/LPT ACC Valve Actuator are changed by incorporation of the new seal ring. For the details of part number change, refer to Section 3 Material Information of this Service Bulletin.

#### E. Approved

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

Category Code 6

Accomplish when the sub-assembly (i.e. modules, accessories, components, build groups) is disasssembled sufficiently to afford access to the affected parts and to all affected spare parts.

#### G. Manpower

Estimated Man-hours to incorporate the full intent of this Service Bulletin:

(1) V2500-A1, V2527-A5 and V2530-A5 engines

Venue Estimated Man-hours

(a) In service ...... Not affected

(b) At overhaul

(2) V2525-D5 and V2528-D5 engines

Venue Estimated Man-hours



#### International Aero Engines

## SERVICE BULLETIN

- (a) In service ...... Not affected
- (b) At overhaul

#### H. Material - Price and Availability

- (1) Modification Kit not required.
- (2) See Reference (3), Parker Hannifin SB No. 5860017-75-94, and Reference (4), Parker Hannifin SB No. 5910479-75-95, for price and availability of future spares.

## I. Tooling - Price and Availability

Refer to Reference (3), Parker Hannifin SB No. 5860017-75-94, and Reference (4), Parker Hannifin SB No. 5910479-75-95, for Tooling.

## J. Weight and Balance

(1) Weight change None

(2) Moment arm No effect

(3) Datum Engine front mount Centerline (Power Plant Section (PPS)100)

## K. Electrical Load Data

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

#### L. References

(1) Internal Reference No.

94VJ064

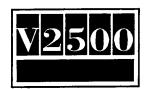
(2) Other References

A320/A321 Aircraft Maintenance Manual.

MD-90 Aircraft Maintenance Manual.

Parker Hannifin Service Bulletin No. 5860017-75-94.

Parker Hannifin Service Bulletin No. 5910479-75-95.



## M. Other Publications Affected

- (1) V2500-A1 Engine Illustrated Parts Catalog (S-V2500-1IA), 75-24-52, to add new parts.
- (2) V2500-A5 Engine Illustrated Parts Catalog (S-V2500-2IA), 75-24-52, to add new parts.
- (3) V2500-D5 Engine Illustrated Parts Catalog (S-V2500-3IA), 75-24-52, to add new parts.



## 2. Accomplishment Instruction

- A. For V2500-A1, V2527-A5 and V2530-A5 Engines:
  - (1) Prerequisite Instructions
    - (a) Remove the following HPT/LPT ACC valve actuator by the approved procedure in reference (1), Chapter/Section 75-24-52, Removal/Installation.

Vendor Part No. (IAE Part No.)

5860017-130 (5W2292) 5860017-131 (5W2293)

5860017-132 (5W2294)

5860017-134 (5W2296)

- (2) Rework Instructions
  - (a) Return the HPT/LPT ACC valve actuator to vendor for modification and re-identification in accordance with Parker Hannifin SB No. 5860017-75-94.
- (3) Fitment Instructions
  - (a) Install the following new part number by the approved procedure in Reference (1), Chapter/Section 75-24-52, Removal/Installation.

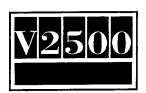
Vendor Part No. (IAE Part No.)

5860017-135 (5w2299) 5860017-136 (5w2300) 5860017-137 (5w2301) 5860017-139 (5w2303)

- (4) Recording Instructions
  - (a) A record of accomplishment is necessary.
- B. For V2525-D5 and V2528-D5 Engines:
  - (1) Prequisite Instructions
    - (a) Remove the following HPT/LPT ACC valve actuator by the approved procedure in reference (2), Chapter/Section 75-24-52, Removal/Installation.

Vendor Part No. (IAE Part No.)

5910479-103 (5W2297)



- (2) Rework Instructions
  - (a) Return the HPT/LPT ACC valve actuator to vendor for modification and re-identification in accordance with Parker Hannifin SB No. 5910479-75-95.
- (3) Fitment Instructions
  - (a) Install the following new part number by the approved procedure in Reference (2), Chapter/Section 75-24-52, Removal/Installation.

Vendor Part No. (IAE Part No.)

5910479-104 (5W2304)

- (4) Recording Instructions
  - (a) A record of accomplishment is necessary.



#### MODIFICATION

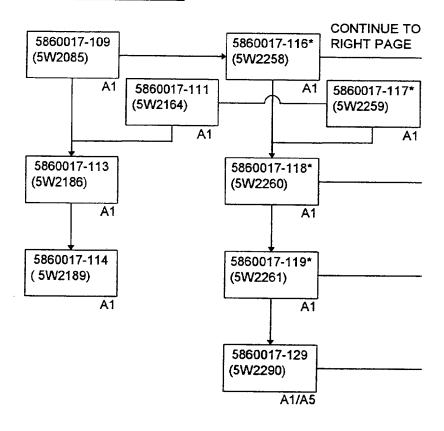
#### PART NUMBER CHANGES

BASE LINE

SB75-0008 (PARKER 5860017-75-51) REPLACEMENT OF LVDT COVER AND BODY BOSS REWORK

SB70-0113 (PARKER 5860017-75-57) REINFORCED LVDT POSITION INDICATOR SLOT END

SB70-0281 (PARKER 5860017-75-86) ADDITIONAL CASTING BOSS FOR SERVO VALVE RETENTION PIN



SB75-0027

(PARKER 5860017-75-66) PART NUMBERS WITH " \* " MARK

INSTALLATION OF PIN RETAINER SHOW THE PARTS INCORPORATED THIS MODIFICATION

ON SERVO VALVE

SB75-0046

(PARKER 5860017-75-91) PART NUMBERS WITH " \*\* " MARK

REPLACEMENT OF ROD END SHOW THE PARTS INCORPORATED THIS MODIFICATION

SB75-0059

(PARKER 5860017-75-94) PART NUMBERS WITH "\*\*\*" MARK

REPLACEMENT OF SEAL RINGS SHOW THE PARTS INCORPORATED THIS MODIFICATION

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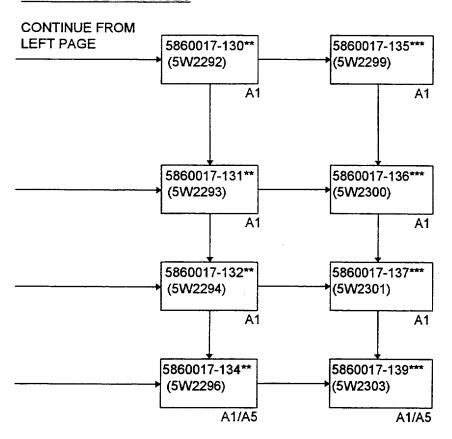
Family Tree - HPT/LPT ACC Valve Actuator Ref. Catalog Sequence No. 75-24-52 Fig. 01,

Item 100 (Part Number 5860017)

Fig.1 (Sheet 1 of 2)



#### PART NUMBER CHANGES



NOTE: MODEL CODE SHOWN UNDER THE PART NUMBER BOXES INDICATES AFFECTED ENGINE MODELS.

A1 --- FOR V2500-A1

A5 --- FOR V2527-A5 AND V2530-A5 D5 --- FOR V2525-D5 AND V2528-D5

Family Tree - HPT/LPT ACC Valve Actuator Ref. Catalog Sequence No. 75-24-52 Fig. 01,
Item 100 (Part Number 5860017)
Fig.1 (Sheet 2 of 2)

V2500-ENG-75-0059

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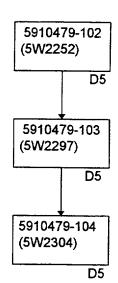
## **MODIFICATION**

## PART NUMBER CHANGES

**BASE LINE** 

SB75-0046 (PARKER 5910479-75-92) REPLACEMENT OF ROD END

SB75-0059 (PARKER 5910479-75-95 REPLACEMENT OF SEAL RINGS



NOTE: MODEL CODE SHOWN UNDER THE PART NUMBER BOXES INDICATES AFFECTED ENGINE MODELS.

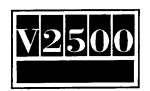
A1 --- FOR V2500-A1

A5 --- FOR V2527-A5 AND V2530-A5 D5 --- FOR V2525-D5 AND V2528-D5

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Family Tree - HPT/LPT ACC Valve Actuator Ref. Catalog Sequence No. 75-24-52 Fig. 01, Item 100 (Part Number 5910479)
Fig.2

OLD



## **SERVICE BULLETIN**

## 3. Material Information

Applicability: For each V2500 Engine to incorporate this Bulletin.

EST'D

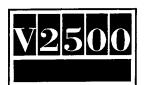
## A. Kits associated with the Bulletin

None

NEW

## B. Parts Affected by this Bulletin

PART NO. (ATA NO.)			KEYWORD		DISPOSITION
For V2500-A1					
5860017-139 (5w2303 (75-24-52)	1		.Actuator, Valve HPT/LPT ACC		(A) (B) (1D) (S1)
5860017-135 (5W2299 (75-24-52)	1		.Actuator, Valve HPT/LPT ACC	5860017-130 (5W2292) (01-100)	(1D) (S1)
5860017-136 (5w2300 (75-24-52)	1		.Actuator, Valve HPT/LPT ACC	5860017-131 (5W2293) (01-100)	(1D) (S1)
5860017-137 (5W2301 (75-24-52)	1		.Actuator, Valve HPT/LPT ACC		(1D) (S1)
For V2527-A5	and V2	530-A5 Engin	es:		
5860017-139 (5w2303 (75-24-52)	1		.Actuator, Valve HPT/LPT ACC		(A) (B) (1D) (S1)
For V2525-D5	and V2	528-D5 Engin	es:		
5910479-104 (5W2304 (75-24-52)	1		.Actuator, Valve HPT/LPT ACC		(A) (B) (1D) (S1)



## International Aero Engines

## SERVICE BULLETIN

## C. <u>Instruction/Disposition Code Statements</u>

- (A) New part is currently available for sale.
- (B) Old parts will no longer be available for sale.
- (1D) Old part can be modified and re-identified.
- (S1) Old and new parts are freely interchangeable both physically and funtionally.

NOTE: Consult following vendor for price information.

Parker Hannifin Corporation Customer Support Commercial Division 16666 Von Karman Avenue Irvine, CA 92714 USA

TEL: 714-660-8312 FAX: 714-660-8390





AIR

V2500 ENGINE - HPT/LPT ACC
ACTUATOR

UPGRADE TO 5860017-135 THROUGH 139 BY
INCORPORATING AN IMPROVED SHAFT SEAL AND
A MODIFIED ACTUATOR BODY ASSEMBLY

## 1. Planning Information

#### A. Effectivity

This service bulletin is applicable to the HPT/LPT ACC Actuator (hereinafter referred to as the Actuator), part number (P/N) 5860017-130, -131, -132, -133, and -134, installed on the IAE V2500-A1/A5 engine.

NOTE: Previous Service Bulletin 5860017-75-91 must be incorporated prior to this service bulletin.

#### B. Reason

This service bulletin is issued to introduce a design improvement to reduce drain port leakage by incorporating an improved shaft seal, P/N 5924003-112, and a modified actuator body assembly, P/N 5863080-107, -108, -109, or -110.

#### C. Description

This service bulletin provides operators with instructions to return the Actuator to Parker Hannifin Corporation for implementation.

#### D. Compliance - Code 6

This service bulletin is classified as a Life Extension element. The compliance recommendation, therefore, falls into the Operator's Decision category, as defined by the ATA Implementation Guideline Manual (IGM), July 1994. Parker Hannifin Corporation recommends that this service bulletin be accomplished when the Actuator is disassembled sufficiently to afford access to the affected part.

## E. Approval

This service bulletin has been reviewed by the Federal Aviation Administration (FAA), and the modifications herein comply with the applicable Federal Aviation Regulations (FAR) and are FAA approved for installation in the IAE V2500 engines.

## F. Manpower

Not applicable.

## G. Weight and Balance

Not applicable.

#### H. Electrical Load Data

Not affected.



Software Accomplishment Summary

Not applicable.

J. References

Parker Hannifin Corporation Component Maintenance Manual (CMM), ATA 75-24-52. Parker Hannifin Corporation Service Bulletin 5860017-75-91. IAE Service Bulletin V2500 ENG-75-0059 (EC 94VJ064).

#### K. Other Publications Affected

This service bulletin will be incorporated into the Parker Hannifin Corporation CMM, ATA 75-24-52, at the next scheduled revision of the manual.

## L. Family Tree

Table 1 shows the revised configuration numbers and IAE part numbers for Actuators upgraded with the improved shaft seal and actuator body assembly.

Family Tree Table 1

OLD CONFIGURATION	IAE PART	NEW CONFIGURATION	IAE PART
NUMBER	NUMBER	NUMBER	NUMBER
5860017-130	5W2292	5860017-135	5W2299
5860017-131	5W2293	5860017-136	5W2300
5860017-132	5W2294	5860017-137	5W2301
5860017-133	5W2295	5860017-138	5W2302
5860017-134	5W2296	5860017-139	5W2303

#### 2. <u>Material Information</u>

## A. Material - Cost and Availability

(1) Operators who want this service bulletin implemented must send the Actuator to Parker Hannifin Corporation at the address below. The cost for accomplishment of this service bulletin is \$1300.00. Turnaround time is 30 days after receipt of the Actuator, beginning 30 days from the issue date of this service bulletin.

PARKER HANNIFIN CORPORATION	PHONE:	(714) 833-3000
Customer Support Commercial	FAX:	(714) 660-8390
16666 Von Karman Avenue	TELEX:	678304
Irvine, California 92714	SITA:	JNPPHCR
USA	<b>REPAIR STATION NO.:</b>	AU4R063M



(2) The prices and provisions referenced in this service bulletin are valid for 24 months from the issue date of this service bulletin. After that date, please request a quotation from Parker Hannifin Corporation, Customer Support Commercial.

## B. Reidentification

NEW I	PART NUMBER		OLD PART NUMBER				
5860017 CONFIG.	DETAIL P/N	QTY	5860017 CONFIG.	DETAIL P/N	QTY	KEY WORD	DISP.
-135 thru -139	M25988/1-028	1	-130 thru -134	SAME	1	PACKING	SCRAP
-135 thru -139	M25988/1-215	1	-130 thru -134	SAME	1	PACKING	SCRAP
-135 thru -139	S11065-1-5	1	-130 thru -134	SAME	1	SCRAPER RING	SCRAP
-135 thru -139 5924003-112		2	-130 thru -134	S12562-112	2	SEAL	SCRAP
	SEAL ASSY			M25988/1-112	2	PACKING	SCRAP
-135 thru -139	S30641-215N	1	-130 thru -134	SAME	1	SEAL	SCRAP
-135 thru -139	2813949-101	1	-130 thru -134	SAME	1	PISTON BEARING	SCRAP
-135 thru -139	5833236-101	1	-130 thru -134	SAME	1	BACKUP RING	SCRAP
-139	5863080-107	1	-134	5863080-106	1	ACTUATOR BODY ASSY	REWORK
-135	5863080-108	1	-130	5863080-103	1	ACTUATOR BODY ASSY	REWORK
-136	5863080-109	1	-131	5863080-104	1	ACTUATOR BODY ASSY	REWORK
-137 thru -138	5863080-110	1	-132 thru -133	5863080-105	1	ACTUATOR BODY ASSY	REWORK
-135	5943062-101	1	-130	5943062-101	1	NAMEPLATE	SCRAP
-136 thru -139	5903194-101	1	-131 thru -134	5903194-101	1	NAMEPLATE	SCRAP

## 3. Accomplishment Instructions

Operators who want this service bulletin accomplished must send the Actuator to the address listed in paragraph 2.A.(1). Parker Hannifin Corporation will accomplish the tasks required to upgrade and reidentify the Actuator to the 5860017-135, -136, -137, -138, or -139 configuration.



AIR

V2500 ENGINE - HPT/LPT ACC ACTUATOR

UPGRADE OF 5910479-103 TO -104 BY INCORPORATING AN IMPROVED SHAFT SEAL AND A MODIFIED ACTUATOR BODY ASSEMBLY

## 1. Planning Information

## A. Effectivity

This service bulletin is applicable to the HPT/LPT ACC Actuator (hereinafter referred to as the Actuator), part number (P/N) 5910479-103, installed on the IAE V2500-D5 engines.

NOTE: Previous Service Bulletin 5910479-75-92 must be incorporated prior to this service bulletin.

#### B. Reason

This service bulletin is issued to introduce a design improvement to reduce drain port leakage by incorporating an improved shaft seal, P/N 5924003-112, and a modified actuator body assembly, P/N 5903351-102.

## C. Description

This service bulletin provides operators with instructions to return the Actuator to Parker Hannifin Corporation for implementation.

## D. Compliance - Code 6

This service bulletin is classified as a Life Extension element. The compliance recommendation, therefore, falls into the Operator's Decision category, as defined by the ATA Implementation Guideline Manual (IGM), July 1994. Parker Hannifin Corporation recommends that this service bulletin be accomplished when the Actuator is disassembled sufficiently to afford access to the affected part.

## E. Approval

This service bulletin has been reviewed by the Federal Aviation Administration (FAA), and the modifications herein comply with the applicable Federal Aviation Regulations (FAR) and are FAA approved for installation in the IAE V2500 engines.

## F. Manpower

Not applicable.

#### G. Weight and Balance

Not applicable.

## H. Electrical Load Data

Not affected.

## I. Software Accomplishment Summary

Not applicable.

#### J. References

Parker Hannifin Corporation Component Maintenance Manual (CMM), ATA 75-24-72. Parker Hannifin Corporation Service Bulletin 5910479-75-92. IAE Service Bulletin V2500 ENG-75-0059 (EC 94VJ064).

#### K. Other Publications Affected

This service bulletin will be incorporated into the Parker Hannifin Corporation CMM, ATA 75-24-72, at the next scheduled revision of the manual.

## L. Family Tree

Table 1 shows the revised configuration number and IAE part number for Actuators upgraded with the improved shaft seal and actuator body assembly.

## Family Tree Table 1

OLD CONFIGURATION NUMBER	IAE PART NUMBER	NEW CONFIGURATION NUMBER	IAE PART NUMBER
5910479-103	5W2297	5910479-104	5W2304

## 2. Material Information

## A. Material - Cost and Availability

(1) Operators who want this service bulletin implemented must send the Actuator to Parker Hannifin Corporation at the address below. The cost for accomplishment of this service bulletin is \$1300.00. Turnaround time is 30 days after receipt of the Actuator, beginning 30 days from the issue date of this service bulletin.

PARKER HANNIFIN CORPORATION	PHONE:	(714) 833-3000
Customer Support Commercial	FAX:	(714) 660-8390
16666 Von Karman Avenue	TELEX:	678304
Irvine, California 92714	SITA:	JNPPHCR
USA	REPAIR STATION NO.:	AU4R063M

(2) The prices and provisions referenced in this service bulletin are valid for 24 months from the issue date of this service bulletin. After that date, please request a quotation from Parker Hannifin Corporation, Customer Support Commercial.



## B. Reidentification

QTY	OLD PART NUMBER	KEY WORD	NEW PART NUMBER	DISPOSITION
1	M25988/1-028	PACKING	SAME	SCRAP
2	M25988/1-112	PACKING	NOT APPLICABLE	SCRAP
1	M25988/1-215	PACKING	SAME	SCRAP
1	S11065-1-5	SCRAPER RING	SAME	SCRAP
2	S12562-112	SEAL	5924003-112	SCRAP
1	S30641-215N	SEAL	SAME	SCRAP
1	2813949-101	PISTON BEARING	SAME	SCRAP
1	5833236-101	BACKUP RING	SAME	SCRAP
1	5903351-101	ACTUATOR BODY ASSEMBLY	5903351-102	REWORK
1	5913509-101	NAMEPLATE	SAME	SCRAP

## 3. Accomplishment Instructions

Operators who want this service bulletin accomplished must send the Actuator to the address listed in paragraph 2.A.(1). Parker Hannifin Corporation will accomplish the tasks required to upgrade and reidentify the Actuator to the 5910479-104 configuration.

