



AIR - HP/LP TURBINE ACC SYSTEM - ADDITION OF ANTI-ROTATION SLEEVE TO THE HPT/LPT ACC
AIR VALVE - CATEGORY CODE 5 - MOD.ENG-75-0031

1. Planning Information

A. Effectivity

- (1) Aircraft: Airbus A320
- (2) Engine : V2500-A1 Engines Prior to V0292

B. Reason

(1) Condition

Fretting can occur on the HPT Cam, the LPT Cam, and the Valve Actuator Rod which are used in the HPT/LPT ACC Air Valve. The fretting can occur due to contact between the HPT Cam/LPT Cam and the Valve Actuator Rod.

(2) Background

A new Valve Actuator Rod with parallel faces and a sleeve holding the rod parallel faces, are introduced to prevent rotation of the rod. The new structure provides no contact between the HPT Cam/LPT Cam and the Valve Actuator Rod.

(3) Objective

To prevent fretting of the HPT Cam, the LPT Cam and the Valve Actuator Rod.

(4) Substantiation

Vendor in-house test and analytical substantiation were completed.

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

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

V2500-ENG-75-0031

**C. Description**

(1) The changes introduced by this Service Bulletin are as follows:

NOTE: New HPT/LPT ACC Air Valves have a holed HPT valve vane and four plugs as same as old ones. The requirements for the plug removal/installation has not been changed from old ones. Installation position change of plugs and part number re-identification are subject to a service cycle of HP turbine, refer to Reference (2), V2500 Service Bulletin No. V2500-ENG-75-0021, for details.

- (a) 5W2233 (Vendor Part Number 5860016-123), 5W2234 (5860016-124), 5W2245 (5860016-125) and 5W2246 (5860016-126) HPT/LPT ACC Air Valve supersede 5W2226 (Vendor Part Number 5860016-119), 5W2227 (5860016-120), 5W2228 (5860016-121) and 5W2229 (5860016-122). A part number family tree chart, Figure 1, shows relationship between the part number and the modifications.
- (b) Shape of sleeve bearing mating position of the valve actuator rod is changed from a right circular cylinder to a rod with parallel faces. A bush with parallel faces is added to the inside of ACC valve tube assembly to prevent rotation of the rod.

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 Code 5.

Accomplish when the engine is disassembled sufficiently to afford access to the affected subassembly (i.e. modules, accessories, components build groups) and to all affected spare subassemblies.

F. Manpower

Estimated Manhours to incorporate the full intent of this Bulletin:

Venue	Estimated Manhours
(1) In service	Not applicable
(2) At overhaul	

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

V2500-ENG-75-0031



SERVICE BULLETIN

- (a) To rework 5W2226, 5W2227,
5W2228 or 5W2229 HPT/LPT
ACC air valve Refer to Parker Hannifin SB 5860016-75-63
- (b) To reidentify the HPT/LPT
ACC air valve Refer to Parker Hannifin SB 5860016-75-63

G. Material - Price and Availability

- (1) Modification Kit - Refer to Parker Hannifin SB 5860016-75-63.
- (2) See "Material Information" section for prices and availability of future spares.

H. Tooling - Price and Availability

Special tools - Refer to Parker Hannifin SB 5860016-75-63.

I. Weight and Balance

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

J. Electrical Load Data

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

K. References

- (1) Internal Reference No.
91VJ056
- (2) Other References
Parker Hannifin Corporation Service Bulletin No. 5860016-75-63.
V2500 Engine Service Bulletin No. V2500-ENG-75-0021.
V2500 Engine Manual, 72-00-40 Removal-01 and Installation-10.

L. Other Publications Affected

- (1) V2500 Engine Illustrated Parts Catalog, 75-24-51.
- (2) V2500 Powerplant Illustrated Parts Catalog, 75-24-51.

V2500-ENG-75-0031



2. Accomplishment Instructions

A. Rework Instructions

- (1) Modify removed 5W2226 (Vendor Part Number 5860016-119), 5W2227 (5860016-120), 5W2228 (5860016-121) or 5W2229 (5860016-122) HPT/LPT ACC Air Valve into the new configurations, 5W2233 (5860016-123), 5W2234 (5860016-124), 5W2245 (5860016-125) or 5W2246 (5860016-126), refer to the Reference (1), Parker Hannifin Corporation Service Bulletin No. 5860016-75-63.

B. Assembly Instructions

- (1) Install 5W2233, 5W2234, 5W2245 or 5W2246 HPT/LPT ACC air Valve by the approved procedure in Reference (3), Chapter/Section 72-00-40. Removal-01 and Installation-10.

NOTE: New HPT/LPT ACC Air Valves have a holed HPT valve vane and four plugs as same as old ones. The requirements for the plug removal/installation has not been changed from old ones. Installation position change of plugs and part number re-identification are subject to a service cycle of HP turbine, refer to Reference (2), V2500 Service Bulletin No. V2500-ENG-75-0021, for details.

C. Recording Instructions

- (1) A record of accomplishment is necessary.

V2500-ENG-75-0031



SERVICE BULLETIN

Printed in Great Britain

MODIFICATIONS

PART NUMBER CHANGES

BASE LINE

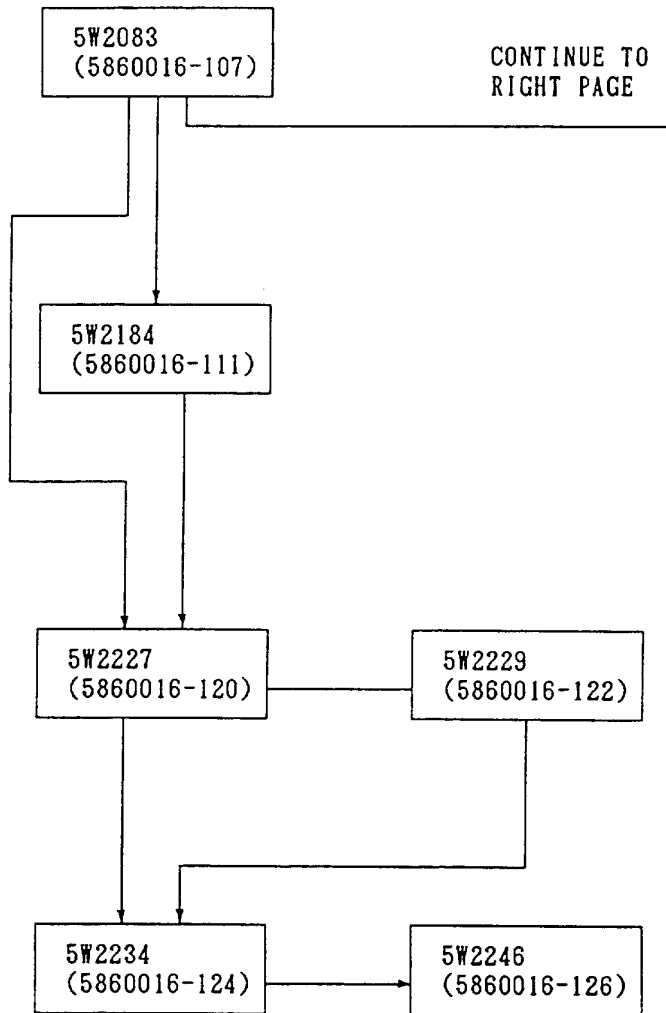
V2500-ENG-70-0050
RIB ADDED TO THE CAMBOX

V2500-ENG-75-0012
SEAL RINGS REMOVED

V2500-ENG-75-0018
CONTROLLED SERVICE USE:
4-HOLES AND SINGLE SEAL RING
ADDED: PLUGS REMOVED

V2500-ENG-75-0021
PART 1, 3
4-HOLES, SINGLE SEAL RING AND
PLUG STORAGE PLATE ADDED:
PLUGS ON HPT VANE
PART 2
PLUGS ON PLUG STORAGE PLATE
(PART NUMBER CHANGES TO A
NUMBER IN RIGHT SIDE BOX)

V2500-ENG-75-0031
ANTI-ROTATION SLEEVE ADDED:
RELATIONSHIP BETWEEN PART
NUMBER AND PLUG POSITION IS
SAME AS V2500-ENG-75-0021

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Family Tree - HPT/LPT ACC Air Valve Ref. Catalog Sequence No. 75-24-51, Fig. 01, Item 100

Fig.1 (Sheet 1 of 2)

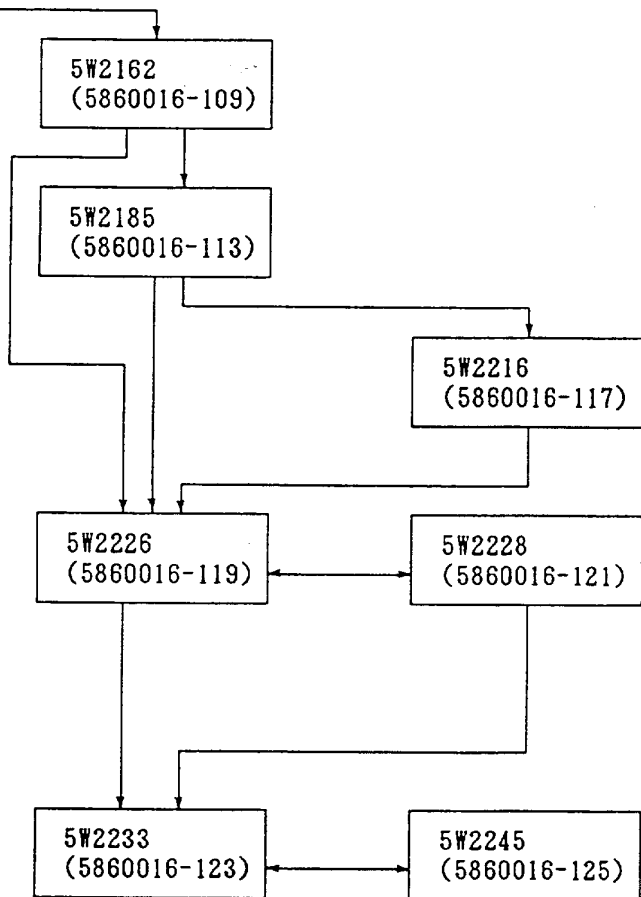
V2500-ENG-75-0031

Sep.27/93

Page 5



PART NUMBER CHANGES

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Family Tree - HPT/LPT ACC Air Valve Ref. Catalog Sequence No. 75-24-51, Fig. 01, Item 100

Fig.1 (Sheet 2 of 2)

V2500-ENG-75-0031



SERVICE BULLETIN

3. Material Informations

Applicability: For each V2500 engine to incorporate this Bulletin.

A. Kits associated

None

B. Parts affected

New Part No. (ATA No.)	Qty	Unit Price (\$)	Keyword	Old art No. (IPC No.)	Instructions Disposition
5W2233 (75-24-51)	1	-	.Valve, HPT/LPT ACC Air	5W2226 (01-100)	(A)(B)
5W2234 (75-24-51)	1	-	.Valve, HPT/LPT ACC Air	5W2227 (01-100)	(B)(E)
5W2245 (75-24-51)	1	-	.Valve, HPT/LPT ACC Air	5W2228 (01-100)	(B)(C)(E)
5W2246 (75-24-51)	1	-	.Valve, HPT/LPT ACC Air	5W2229 (01-100)	(B)(D)(E)

C. Instruction/Disposition Code Statements:

- (A) New part is available for sale. Please make a contact with the Accessory Vendor mentioned below for the detail of spares.
- (B) Old parts can be modified to new parts. Please make a contact with the Accessory Vendor mentioned below for the detail of modification.
- (C) 5W2233 can be modified to 5W2245 at line maintenance level. Old part will be modified to 5W2233 at the Accessory Vendor. Please make a contact with the Accessory Vendor mentioned below for the detail of modification.
- (D) 5W2234 can be modified to 5W2246 at line maintenance level. Old part will be modified to 5W2234 at the Accessory Vendor. Please make a contact with the Accessory Vendor mentioned below for the detail of modification.
- (E) New parts will not be supplied as the spare.

PARKER HANNIFIN CORPORATION
Customer Support Commercial
16666 Von Karman Avenue
Irvine, CA 92714 USA

PHONE: 1-714-833-3000
FAX : 1-714-660-8390
TELEX: 678304
SITA : JNPPHCR

V2500-ENG-75-0031



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SERVICE BULLETIN

V2500 SERIES ENGINES HPT/LPT ACC AIR VALVE ASSEMBLY, PART NUMBERS 5860016-119 THROUGH 5860016-122. UPGRADE TO 5860016-123 THROUGH -126.

1. PLANNING INFORMATION

A. Effectivity

This service bulletin is applicable to all Parker Hannifin Corporation HPT/LPT ACC Air Valve Assemblies, (hereafter, referred to as the Valve) part numbers 5860016-119 through 5860016-122, used on the IAE V2500 engines.

B. Reason

This service bulletin is issued to advise all Model V2500 operators of an upgrade to the Valve that adds an anti-rotation bushing, part number 5903373-101.

C. Description

This service bulletin provides accomplishment instructions and reidentification information for upgrading the Valve.

D. Compliance

The intent of this service bulletin is classified as a Life Extension element. The compliance recommendation, therefore, falls into the non quantified time category, as defined by the ATA Implementation Guideline Manual (IGM) of April 1976.

E. Approval

- (1) This service bulletin has been approved by International Aero Engines (IAE).
- (2) This service bulletin has been reviewed by the Federal Aviation Administration (FAA) and the repairs and modifications, herein, comply with the applicable Federal Aviation Regulations (FARs) and are FAA approved for installation on the IAE V2500 engine.

F. Manpower

Time required is based on one individual performing all the tasks listed after the Valve has been removed from the V2500 engine.

Man-Hours
Table 1

TASK	MAN-HOURS
1. Disassembly of tube and fitting assembly.	0.5
2. Installation of anti-rotation bushing.	1.0
3. Full functional testing.	1.0
4. Reidentification.	0.5
TOTAL	3.0

5860016-75-63

Page 1 of 7

31 AUGUST 1993



Customer Support Commercial

SERVICE BULLETIN

G. Material - Cost and Availability

(1) Option 1:

- (a) Operators who want to have this service bulletin incorporated by Parker Hannifin Corporation, should forward the Valve to:

PARKER HANNIFIN CORPORATION	PHONE: (714) 833-3000
Customer Support Commercial	FAX: (714) 660-8390
16666 Von Karman Avenue	TELEX: 678304
Irvine, CA 92714	SITA: JNPPHCR
USA	

- (b) Accomplishment of this service bulletin by Parker Hannifin Corporation will be completed at a cost to the operator of \$8753.00. There will be a turnaround time of 30 days after receipt of order (ARO) beginning 120 days from the service bulletin's date of issuance.
- (c) The pricing provisions for the accomplishment of this service bulletin by Parker Hannifin Corporation shall be valid for 12 months from the date of issuance. After that date, please refer to the Airline Spare Parts Catalog or request a quotation from Parker Hannifin Corporation, Customer Support Commercial.

(2) Option 2:

For operators who want to accomplish the incorporation of this service bulletin at their facility:

- (a) A kit, part number 3KIT5860016-101 or 4KIT5860016-101, is required for accomplishment of Option 2 in this service bulletin.
- (b) Operators who want to incorporate Option 2 of this service bulletin should order kit, part number 3KIT5860016-101 or 4KIT5860016-101. The kit is available at a cost of \$8543.00 to operators with a delivery time of 90 days ARO beginning 120 days from the date of issuance of this service bulletin. The kit should be ordered from:

PARKER HANNIFIN CORPORATION	PHONE: (714) 833-3000
Customer Support Commercial	FAX: (714) 660-8390
16666 Von Karman Avenue	TELEX: 678304
Irvine, CA 92714	SITA: JNPPHCR
USA	

H. Tooling - Price and Availability

Not applicable.

I. Weight and Balance

None.

5860016-75-63

Page 2 of 7



Customer Support Commercial

SERVICE BULLETIN

J. Electrical Load Data

Not affected.

K. References

Parker Hannifin Corporation's Component Maintenance Manual (CMM), ATA 75-24-51, Revision 1, dated Nov. 1/88.

Parker Hannifin Corporation's Customer Support Commercial Service Bulletin, 5860016-75-59, dated Feb 7/91.

IAE International Aero Engines Service Bulletin, V2500-ENG-75-0031.

L. Other Publications Affected

This service bulletin will be incorporated into Parker Hannifin Corporation's CMM 75-24-51, during the next scheduled revision of the manual.

M. Family Tree

See reidentification procedure 2.C. (12).

2. ACCOMPLISHMENT INSTRUCTIONS

A. Option 1: See paragraph 1.G.(1) in this service bulletin.

B. Option 2: Unless otherwise noted, refer to Parker Hannifin Corporation's CMM 75-24-51, and the following procedures for item numbers referenced throughout these instructions.

- (1) Refer to the DISASSEMBLY section of CMM 75-24-51. Disassemble only those parts which must be removed to gain access to where the anti-rotation bushing, part number 5903373 101, can be installed.
- (2) Remove lockwire from jam nut (10). Loosen jam nut and remove rod end assembly (5).
- (3) Stand Valve up on the work surface, actuator rod assembly (60) end up. Fully retract rod.
- (4) Remove four screws (40) and four washers (45).
- (5) Stand Valve up on the work surface with the actuator rod assembly (5, IPL 1) end up. Remove tube and fitting assembly, part number 5883367-102, from body assembly (260).
- (6) Using long-jaw snap ring pliers, remove snap rings (50) and two bearings (55) from tube and fitting assembly, 5883367-102.
- (7) Remove nameplate, part number 5883677-101 or 5883677-102, from HPT body assembly (265).

5860016-75-63

Page 3 of 7

31 AUGUST 1993



Customer Support Commercial

SERVICE BULLETIN

C. Using the kit parts, reassemble the Valve in accordance with ASSEMBLY section of CMM, 75-24-51.

- (1) Using assembly tool, F80-0-50542, install two snap rings (50) into the inner groove at each end of tube and fitting assembly, part number 5903376-101.
- (2) Install bearing (55) into top flange of tube and fitting assembly part number, 5903376-101. Install remaining bearing, part number 5913115-101 into clevis end of tube and fitting assembly.
- (3) Using standard snap ring pliers, install remaining snap ring (50).
- (4) Install anti-rotation bushing, part number, 5903373-101, into tube and fitting assembly.
- (5) Install actuator assembly rod, part number, 5903375-101 into HPT (265) and LPT (270) body assembly.
 - (a) Close HPT vane (110) and LPT vane (170).
 - (b) Slide actuator rod assembly (65) into cam box fitting (35) and hold toward LPT cam box side.

NOTE: Do not engage roller (70) into cam.

- (c) Open HPT vane (110) and insert HPT side roller into HPT cam (160).
- (d) Open LPT vane (170) and insert LPT side roller into LPT cam (220).

NOTE: Verify roller (70) is engaged in the cam track.

NOTE: Valve should be in the fully retracted position.

- (6) Slide tube and fitting assembly part number, 5903376-101, onto actuator rod assembly, part number 5903375-101.
- (7) Install four washers (45) and four screws (40). Torque screws to 35 to 38 inch pounds. (4,0 to 4,3 N·m).

CAUTION: MANUALLY STROKE VALVE BY PULLING OR PUSHING THE ACTUATOR ROD ASSEMBLY (60) TO VERIFY LPT VANE (170) AND HPT VANE (110) MOVEMENT. THIS WILL VERIFY THAT CAMS AND ROLLERS ARE ENGAGED.

- (8) Install lock washer (15), jam nut (10), and rod end assembly (5).
- (9) Rod end adjustment (See Figure 1)
 - (a) Install assembly aid, F80-0-50623, to inlet side of HPT body assembly (265).
 - (b) Adjust HPT vane (110) to an angle of 30 degrees, 36 minutes and clamp vane in position using thumb screw.

5860016-75-63

Page 4 of 7



Customer Support Commercial

SERVICE BULLETIN

- (c) Install adjustment aid, F80-0-50625, to clevis end of tube and fitting, part number 5903376-101, using pins.
- (d) Adjust rod end (5) 3.366 to 3.388 inches (85,496 to 86,055 mm).
- (e) Verify that tang of lock washer (15) is in groove of actuator rod assembly part number, 5903375-101.
- (f) Torque jam nut (10) to 60 to 70 inch pounds (6,8 to 7,9 N·m).
- (g) Lockwire jam nut (10) to lock washer (15) using lockwire, MS20995N20.
- (10) Perform full functional testing in accordance with the TESTING AND FAULT ISOLATION section of CMM, 75-24-51.
- (11) Reidentify the Valve by impression stamping the information in the specific areas:
 - (a) For the 5860016-119 (IAE 5W2226) valve:
P/N 5860016-123 REV ____
P/L 5891016-109 REV ____
SER NO. ____
ACD NO 424JM
BLD STD 39
IAE P/N 5W2233
 - (b) For the 5860016-120 (IAE 5W2227) valve:
P/N 5860016-124 REV ____
P/L 5861016-115 REV ____
SER NO. ____
ACD NO. 424JM
BLD STD 40
IAE P/N 5W2234
 - (c) For the 5860016-121 (IAE 5W2228) valve:
P/N 5860016-125 REV ____
P/L 5891016-110 REV ____
SER NO. ____
ACD NO. 424JM
BLD STD 41
IAE P/N 5W2245

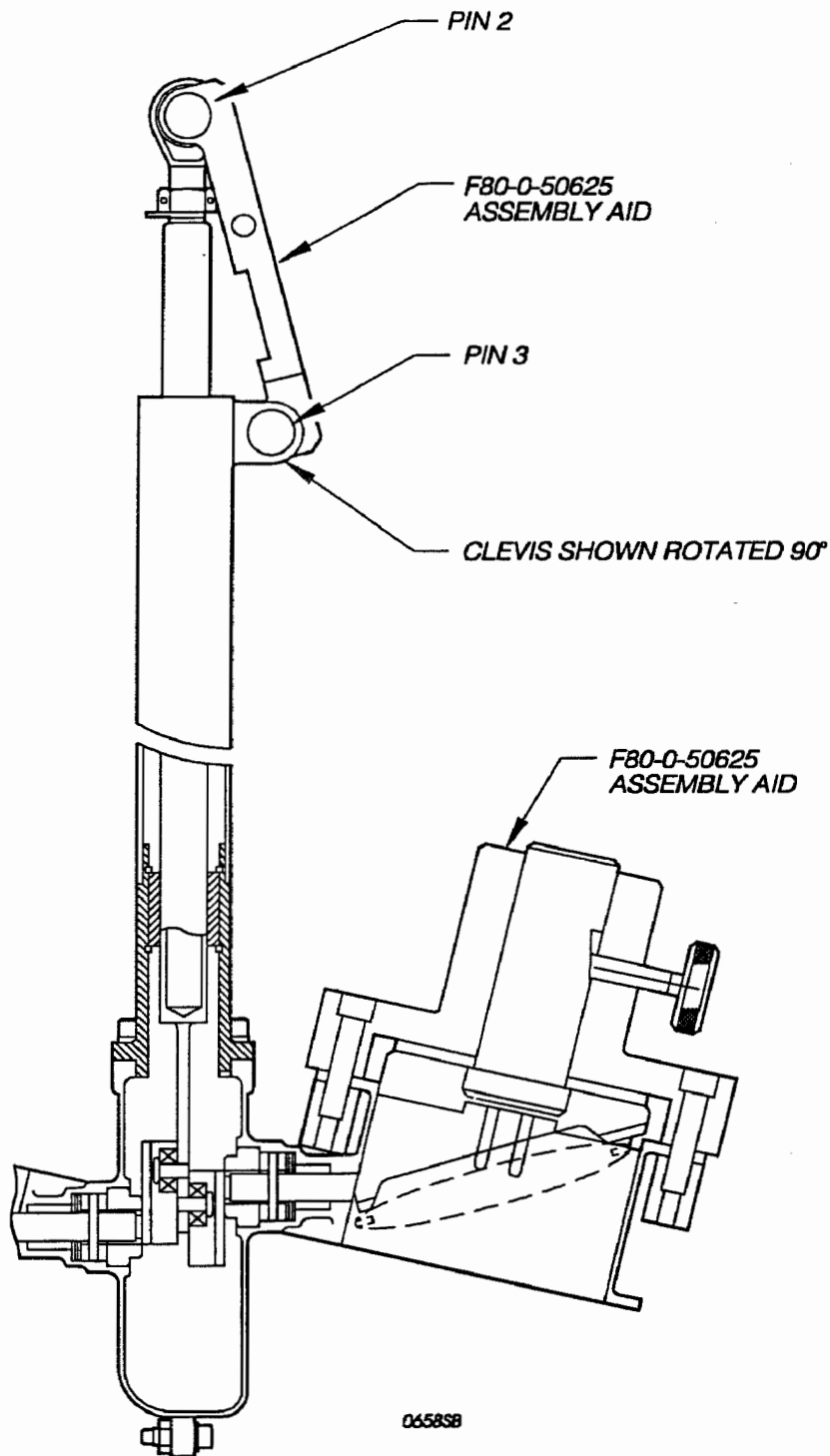
5860016-75-63

Page 5 of 7



Customer Support Commercial

SERVICE BULLETIN



Rod End Adjustment
Figure 1

5860016-75-63

Page 6 of 7

31 AUGUST 1993

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



Customer Support Commercial

SERVICE BULLETIN

(d) For the 5860016-122 (IAE 5W2229) valve:

P/N 5860016-126 REV ____
P/L 5861016-116 REV ____
SER NO. ____
ACD NO. 424JM
BLD STD 42
IAE P/N 5W2246

- (12) Install nameplate, part number 5883677-101 or 5883677-102, around HPT body assembly (265). Tack weld end of nameplate strap.

3. Material Information

- A. The kits, part number 3KIT5860016-101 or 4KIT5860016-101, contains the parts to accomplish this service bulletin. The contents of the kits are listed in Table 2 or Table 3.

3KIT5860016-101 Material Information
Table 2

CONFIGURATION	NEW P/N	QTY	KEYWORD	OLD P/N	DISPOSITION
5860016-119 and -121	5903375-101	1	Actuator Rod Assy	5883369-101	Scrap
	5903376-101	1	Tube and Fitting Assy	5883367-102	Scrap
	5903373-101	1	Anti-rotation Bushing	None	None
	5883677-101	1	Nameplate	Same	Scrap
	5913115-101	1	Bearing	5863144-101	Scrap

4KIT5860016-101 Material Information
Table 3

CONFIGURATION	NEW P/N	QTY	KEYWORD	OLD P/N	DISPOSITION
5860016-120 and -122	5903375-101	1	Actuator Rod Assy	5883369-101	Scrap
	5903376-101	1	Tube and Fitting Assy	5883367-102	Scrap
	5903373-101	1	Anti-rotation Bushing	None	None
	5883677-102	1	Nameplate	Same	Scrap
	5913115-101	1	Bearing	5863144-101	Scrap

- B. Provisions contained within this service bulletin shall be valid for 12 months from the date of issuance. After that date, please refer to the Parker Airline Spare Parts Catalog or request a quotation from Parker Customer Support Commercial.

5860016-75-63

Page 7 of 7

31 AUGUST 1993

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