



AIR - HPT/LPT ACC ACTUATOR ASSEMBLY - NEW LVDT COVER INTRODUCTION AND REWORK OF LVDT COVER AND ACTUATOR BODY BOSS - CATEGORY CODE 4 - MOD.ENG-75-0008

1. Planning Information

A. Effectivity

- (1) Aircraft: Airbus A320
- (2) Engine: V2500-A1 Engines that have 5W2085 or 5W2164 HPT/LPT ACC Actuator Assembly.

B. Reason

(1) Condition

Vendor in-house tests show that strength improvement of the HPT/LPT ACC Actuator LVDT Cover may extend it's service life. Potential interference of the actuator body and/or introduced new LVDT Cover with the ACC Actuator Rear Mount Bracket was noted.

(2) Background

New LVDT Cover with an additional rib has been provided. New LVDT Cover incorporated ACC Actuator Assembly is identified as 5W2164. 5W2164 HPT/LPT ACC Actuator Assemblies with serial numbers 146 through 185, 188, 190 through 195 and 200 through 203 have a possible interference of the actuator body and/or the LVDT Cover with the ACC Actuator Rear Mount Bracket. The HPT/LPT ACC Actuator Assembly can not be installed correctly if there is an interference. Elimination of excessive material for interfered actuator body and/or the LVDT Cover has been provided to obtain certain installation of the HPT/LPT ACC Actuator Assembly.

(3) Objective

To improve durability of LVDT Cover by introducing new LVDT Cover and to prevent interference of the actuator body and/or the LVDT Cover with the ACC Actuator Rear Mount Bracket.

(4) Substantiation

New cover has been substantiated by vendor in-house test and substantiation for the excessive material removal is analytically completed.

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

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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

C. Description

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

- (a) 5W2085 HPT/LPT ACC Actuator Assembly is to be reidentified as 5W2186 by replacing LVDT Cover and examining interference.
- (b) 5W2164 HPT/LPT ACC Actuator Assembly is to be reidentified as 5W2186 by examining interference with ACC Actuator Rear Mount Bracket and eliminating excessive material.

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 4

Accomplish at the first visit of an engine or module to a maintenance base capable of compliance with the accomplishment instructions regardless of the planned maintenance action or the reason for engine removal.

F. Manpower

Estimated Manhours to incorporate the full intent of this Bulletin:

Venue	Estimated Manhours
(1) In service	TOTAL 1 hour 18 minutes
(a) To gain access	
(i) Install warning notices	5 minutes
(ii) Open the fan cowls ..	7 minutes

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(iii) Open the thrust
reverser 9 minutes

(iv) Remove the ACC
actuator 11 minutes

TOTAL 32 minutes

(b) To embody

(i) Rework 5W2085
actuator assembly Refer to Parker Hannifin
S.B.5860017-75-51

(ii) Rework 5W2164
actuator assembly Refer to Parker Hannifin
S.B.5860017-75-51

(iii) Re-identify
actuator 2 minutes

TOTAL 2 minutes

(c) Return to flyable status

(i) Install the ACC
actuator 13 minutes

(ii) Carry out an IDG leak
check 8 minutes

(iii) Close the thrust
reverser 12 minutes

(iv) Close the fan cowls .. 8 minutes

(v) Remove the warning
notices 5 minutes

TOTAL 46 minutes

(2) At overhaul

(a) To gain access Not applicable
(Parts are accessible at overhaul)

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(b) To embody

- (i) Rework 5W2085 actuator
-
- bracket

Refer to Parker Hannifin
S.B.5860017-75-51

- (ii) Rework 5W2164 actuator
-
- bracket

Refer to Parker Hannifin
S.B.5860017-75-51

- (iii) Re-identify
-
- actuator 2 minutes

TOTAL 2 minutes

G. Material - Price and Availability

- (1) Modification Kit not required.

- (2) See "Material Information" section for prices and availability of future
-
- spares.

Tooling - Price and Availability

Special tool is not necessary.

I. Weight and balance

- (1) Weight change None

- (2) Moment arm No effect

- (3) Datum Engine front mount centreline
-
- (Powerplant Section (P.P.S.) 100))

J. Electrical Load Data

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

K. References

- (1) Internal Reference No.

89VJ019

90VJ004

- (2) Other References

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Parker Hannifin Corporation Service Bulletin 5860017-75-51.

Aircraft Maintenance Manual, 75-24-52 Removal/Installation.

V2500 Standard Practices/Processes Manual, 70-09-00 Marking of Parts.

L. Other Publications Affected

- (1) V2500 Engine Illustrated Parts Catalog, 75-24-52.
- (2) V2500 Power Plant Illustrated Parts Catalog, 75-24-52.

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2. Accomplishment Instructions

A. Prerequisite Instructions

- (1) Remove the 5W2085 and/or 5W2164 HPT/LPT ACC Actuator Assembly by the approved procedure in Reference (2), Chapter/Section 75-24-52, Removal/Installation.

B. Rework Instructions

- (1) For 5W2085 HPT/LPT ACC Actuator Assembly

Forward 5W2085 HPT/LPT ACC Actuator Assembly to:

PARKER HANNIFIN CORPORATION
Customer Support Operations
16666 Von Karman Avenue
Irvine, California 92714
USA

- (2) For 5W2164 HPT/LPT ACC Actuator Assembly

Do a modification of the 5W2164 HPT/LPT ACC Actuator Assembly and reidentify as 5W2186 by the approved procedure in Reference (1) and instructions described below:

- (a) Reidentify 5W2164 HPT/LPT ACC Actuator Assembly as 5W2186 by the approved procedure in Reference (3), Chapter/Section 70-09-00, Marking of Parts.

C. Fitment Instructions

- (1) Install the 5W2186 HPT/LPT ACC Actuator Assembly by the approved procedure in Reference (2), Chapter/Section 75-24-52, Removal/Installation.

D. Recording Instructions

- (1) A record of accomplishment is necessary.



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3. Material Information

Applicability: For each V2500 Engine to incorporate this Bulletin.

A. Kits associated with this Bulletin:

None

B. Parts affected by this Bulletin:

New Part No. (ATA No.)	Qty	Est'd Unit Price (\$)	Keyword	Old Part No. (IPC No.)	Instructions Disposition
5W2186 (75-24-52)	1	*	Actuator, Assembly HPT/LPT ACC Valve	5W2085 or 5W2164 (01-100)	(1D)

C. Instruction/Disposition Code Statements:

(1D) A modification can be done to the Old Part and it can then be reidentified as the New Part number.

D. Expendable parts required to incorporate this Bulletin

Part No.	ATA/IPC No.	Qty	Keyword
MS24665-151 (75-24-51, 01-410 and 01-495)		2	Pin, cotter (Price .18)

NOTE: The estimated 1991 unit prices shown are provided for planning purposes only and do not constitute a firm quotation. Consult the IAE Price Catalog or contact IAE's Spare Parts Sales Department for information concerning firm prices.

* Contact vendor for new part price

PARKER HANNIFIN CORPORATION
CUSTOMER SUPPORT OPERATIONS
16666 Von Karman Avenue
Irvine, CA 92714
USA

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AIR - V2500 - HP/LP ACC ACTUATOR, PART NUMBER 5860017-109 & -111. MODIFICATION OF SPRING RETAINER SYSTEM, REWORK OF LVDT OVER, ACTUATOR BODY AND WASHER REPLACEMENT AND UPGRADE TO A -113 CONFIGURATION.

1. PLANNING INFORMATION

A. Effectivity

This service bulletin is applicable to the Parker Hannifin Corporation HP/LP ACC Actuator (hereafter referred to as the Actuator) Part Number 5860017-109 & -111; used on the IAE V2500 engines.

- (1) All 5860017-109 Actuators are applicable.
- (2) Applicable 5860017-111 Actuators are specifically noted by serial number effectivity. 5860017-111 Actuators with the following serial numbers ARE suspect units and should be checked and/or reworked as instructed in this service bulletin:

Serial Numbers:

146	156	166	176	188
147	157	167	177	190
148	158	168	178	191
149	159	169	179	192
150	160	170	180	193
151	161	171	181	194
152	162	172	182	195
153	163	173	183	200
154	164	174	184	201
155	165	175	185	202
				203

B. Reason

This service bulletin is issued to advise all operators of IAE V2500 engines of a possible interference of the actuator body and/or the LVDT cover with the International Aero Engines mounting bracket. A rework of the actuator body and/or the LVDT cover, in conjunction with a replacement of a washer, is recommended by Parker Hannifin Corporation and International Aero Engines in order to eliminate the excess material and alleviate the interference from the HP/LP Actuator. In addition, the 5860017-109 actuator requires a spring retainer modification in order to be upgraded to a 5860017-113.

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C. Description

This service bulletin provides accomplishment instructions for the 5860017-109 and -111 actuators. This service bulletin describes the instructions to be taken by each operator in regard to the accomplishment instructions described herein.

- (1) Option 1: Operators who have a 5860017-109 Actuator are instructed to return the unit to Parker Hannifin Corporation, Customer Support Operations for the modification, rework and incorporation of this service bulletin.
- (2) Option 2: Operators who have a 5860017-111 Actuator are instructed to verify the specific serial number effectivity and, if applicable, incorporate the instructions of this service bulletin.

D. Compliance

The intent of this service bulletin is classified as an Operational Improvement to extend the life of the actuator. It, therefore, falls into the Operator's Decision category as defined by the ATA Implementation Guideline Manual (IGM 1) of April 1976.

E. Approval

- (1) This service bulletin has been approved by International Aero Engines.
- (2) Changes specified in the rework instructions and the part number have been shown to comply with the applicable FAA regulations.

F. Manpower

Man hour estimates listed are exclusive of removal or reinstallation of the actuator from the engine. All estimates are based on one individual performing each of the tasks listed.

- (1) Option 1: Return of a 5860017-109 Actuator to Parker Hannifin Corporation:

Man hour estimates for this option are not applicable to airline operators.

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(2) Option 2: Operators with a 5860017-111 Actuator.

<u>TASK</u>	<u>MAN HOURS</u>
Check the actuator body and LVDT cover for excess material as shown in Figure 1 in this service bulletin.	0.25
Remove the insulation blanket and LVDT cover from the actuator assembly.	0.25
Rework the actuator body and/or LVDT cover.	1.00
Reassemble the LVDT cover and insulation blanket on the actuator assembly.	0.50
Reidentify the actuator assembly.	<u>0.50</u>
TOTAL	2.50

G. Material - Cost and Availability

(1) Option 1: 5860017-109 Actuator

(a) Operators are instructed to return the Actuator for rework and modification to:

PARKER HANNIFIN CORPORATION
Customer Support Operations
16666 Von Karman Avenue
Irvine, California 92714
USA

(b) Accomplishment of this service bulletin by Parker Hannifin Corporation will be completed at no cost to the operator with a turnaround time of 60 days ARO, beginning 46 weeks from the date of issuance of this service bulletin.

(2) Option 2: 5860017-111 Actuator

(a) A kit, Part Number KIT5860017-101 is required for accomplishment of Option 2 in this service bulletin.

(b) The rework specified for Option 2 in this service bulletin can be accomplished by operators in the field during the next scheduled maintenance check.

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- (c) The kit, Part Number KIT5860017-101, shall be provided at no cost with a delivery time of 60 days ARO, beginning 70 days after issuance of this service bulletin and may be ordered from:

PARKER HANNIFIN CORPORATION
Customer Support Operations
16666 Von Karman Avenue
Irvine, California 92714
USA

- (d) The contents of this kit are fully described in Section 3 of this service bulletin.
- (e) Operators who wish to have this service bulletin accomplished by Parker Hannifin Corporation may return the 5860017-111 actuator to:

PARKER HANNIFIN CORPORATION
Customer Support Operations
16666 Von Karman Avenue
Irvine, California 92714
USA

- (f) Accomplishment of Option 2 in this service bulletin by Parker Hannifin Corporation will be completed at no cost to the operator with a turnaround time of 60 days after receipt of the Actuator, beginning 70 days after issuance of this service bulletin.

H. Tooling - Price and Availability

Not applicable.

I. Weight and Balance

Not affected.

J. Electrical Load Data

Not affected.

K. References

Parker Hannifin Corporation Component Maintenance Manual, CMM 75-24-52, Revision 0, dated Nov 1/88.

L. Other Publications Affected

This service bulletin information will be incorporated into Parker Hannifin Corporation Component Maintenance Manual, CMM 75-24-52, at the next scheduled revision.

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M. Family Tree Chart

PART NUMBER	NOMENCLATURE	5860017 -109	5860017 -111	5860017 -113
5861017-109 5883370-101 5863080-103 5863147-101	ACTUATOR ASSY COVER, LVDT BODY ASSY, Actuator SPRING RETAINER	X X X X		
5891017-101 5883820-101 5863080-103 5893373-101	ACTUATOR ASSY COVER, LVDT BODY ASSY, Actuator SPRING RETAINER		X X X X	
5891017-103 5883820-102 5863080-104 5893373-101	ACTUATOR ASSY COVER, LVDT BODY ASSY, Actuator SPRING RETAINER			X X X X

2. ACCOMPLISHMENT INSTRUCTIONS

- A. Option 1: For operators with a 5860017-109 Actuator, see paragraph 1.G.(1) in this service bulletin.
- B. Option 2: Operators with a 5860017-111 Actuator shall perform the following instructions.
- (1) Unless otherwise noted, refer to Parker Hannifin Corporation, Component Maintenance Manual 75-24-52, IPL Figure 1, and Figure 1 and 2 in this service bulletin for all item numbers referenced in these instructions.
 - (2) Check the actuator assembly mounting side with a straight edge, as indicated in Figure 1 of this service bulletin and as follows:
 - (a) Lay a straight edge flat across the actuator body machined raised flats. Interference with either the LVDT cover edge or the actuator body boss should not be present.
 - (b) If interference occurs, rework the actuator body boss and/or the LVDT cover edge as instructed in Paragraph 2.C.

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(c) If no interference occurs between the straight edge and the actuator body boss or the LVDT cover, modify the actuator as follows:

- 1) Refer to Figure 2, View A, in this service bulletin, and remove four screws (145) and four washers (150) from the noted locations on the LVDT cover.
- 2) Reinstall four screws (145) with four new washers, Part Number NAS620C6, in the noted locations on the LVDT cover.
- 3) Torque four screws (145) 10 to 11.5 lb.in. (1.13 to 1.30 N·m).
- 4) Proceed with Paragraph 2.D.(2)(c) and reidentify the actuator to indicate completion of this service bulletin.

C. Rework Instructions. Refer to Figure 2 in this service bulletin and as follows:

- (1) Remove the insulation blanket (5) from the actuator assembly.
- (2) Remove five screws (145) and five washers (150) from the LVDT cover (140); then remove the LVDT cover.
- (3) Carefully rework to remove any excess material from the actuator body boss until interference with the straight edge layed flat across the actuator body machined raised flats is no longer present. (See View A.)

NOTE: Visually check the International Aero Engines mounting bracket holes for any rework debris and remove if present.

- (4) Carefully rework to remove 0.030 in. (0.762 mm) from the edge of the LVDT cover (140). (See View B.)
- (5) Debur the reworked surfaces.
- (6) Apply a light coating of Chem Film per MIL-C-5541, Class 3, to all reworked surfaces.
- (7) Reposition the LVDT cover (140).
- (8) Refer to Figure 2, View A, and install four new washers, Part Number NAS620C6, in the noted locations; then reinstall one washer (150) and five screws (145).
- (9) Reinspect per Paragraph 2.B.(1). If rework is satisfactory, continue with the following procedures. If rework is not satisfactory, repeat rework instructions until satisfactorily completed.

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(10) Torque five screws (145) 10 to 11.5 lb.in. (1.13 to 1.30 N·m).

(11) Reinstall insulation blanket (5) on actuator assembly.

D. Reidentification

(1) Option 1:

All 5860017-109 Actuators that are returned to Parker Hannifin Corporation for the accomplishment of this service bulletin will be reidentified with the following:

P/N 5860017- REV
P/L 5891017- REV
ACD NO 424JM BLD STD
IAE P/N

(2) Option 2:

(a) All 5860017-111 Actuators that are returned to Parker Hannifin Corporation for the accomplishment of this service bulletin will be reidentified with the following:

P/N 5860017- REV
P/L 5891017- REV
ACD NO 424JM BLD STD
IAE P/N

(b) The additional information referenced in Paragraph 2.D.(2)(c) 2) will be pre-stamped on the new nameplate prior to installation at Parker Hannifin Corporation.

(c) All operators with a 5860017-111 Actuator and completing this service bulletin in the field shall:

1) Reidentify the actuator nameplate by inscribing the following information in the appropriate space box provided:

P/N 5860017- REV
P/L 5891017- REV
ACD NO 424JM BLD STD
IAE P/N

2) Transfer the serial number and assembly date information from the old actuator nameplate, located on the cover, to the appropriate space box provided on the new nameplate, Part Number 5903194-101, as noted below:

SER NO ASSY DATE

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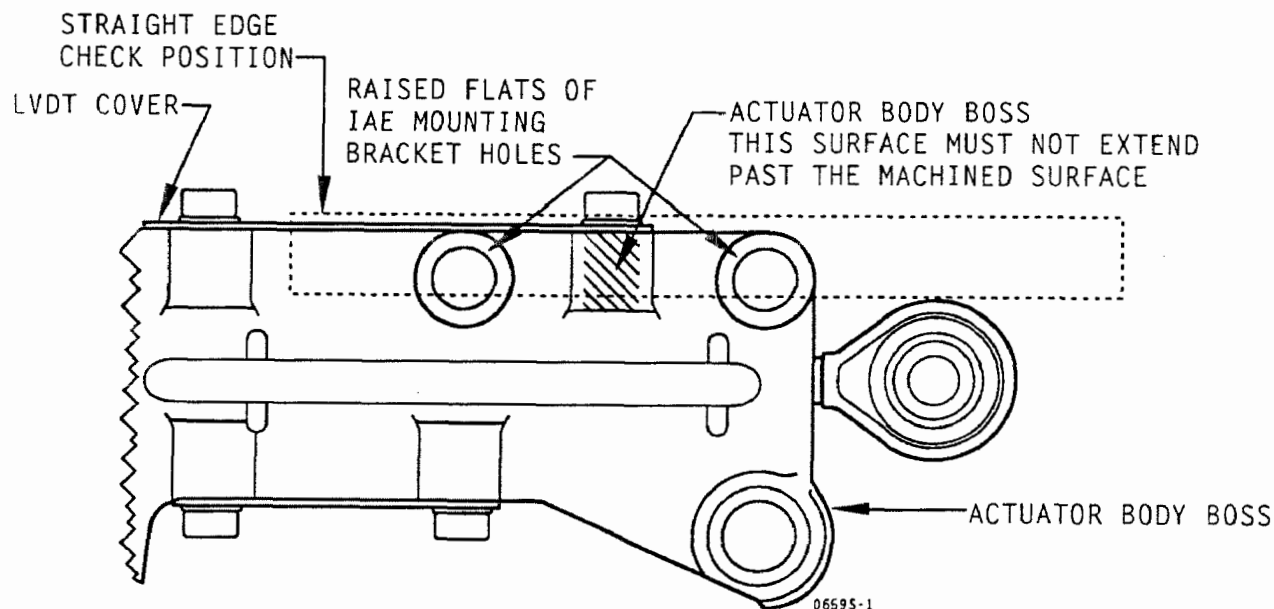
- 3) Peel the backing from the new nameplate, Part Number 5903194-101.
- 4) Position and install the new nameplate over the stenciled nameplate on the cover, as noted in Figure 2, View B.

3. MATERIAL INFORMATION

- A. A kit, Part Number KIT5860017-101, is required to upgrade the 5860017- 111 actuator and fulfill the accomplishment of this service bulletin. The contents of this kit are:

<u>NEW</u> <u>PART NO.</u>	<u>QTY</u>	<u>KEYWORD</u>	<u>OLD</u> <u>PART NO.</u>	<u>DISPOSITION</u>
NAS620C6	4	WASHER	AN960C6L	SCRAP
5903194-101	1	NAMEPLATE	None	None

- B. The no charge provision for the accomplishment of this service bulletin by Parker Hannifin Corporation shall be valid for 36 months from the date of issuance. Subsequent to that date, please refer to the Airline Spare Parts Catalog or request a quotation from Parker Hannifin Corporation, Customer Support Operations.



Straight Edge Check
Figure 1

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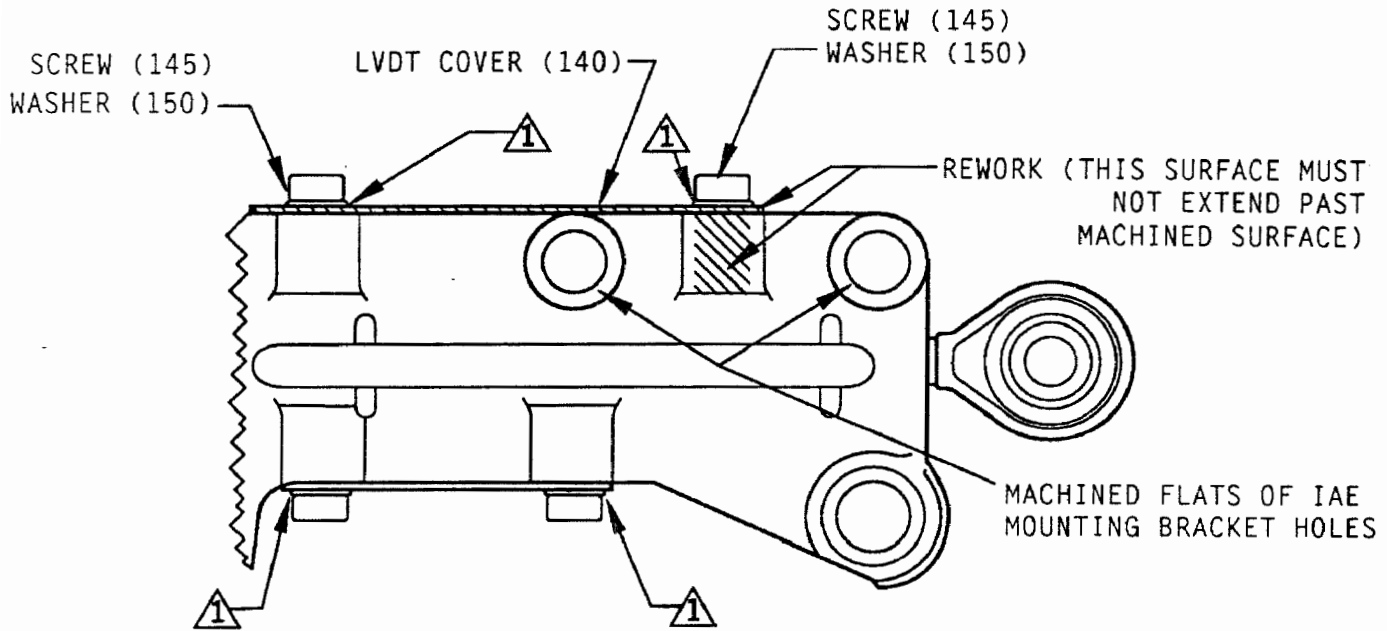
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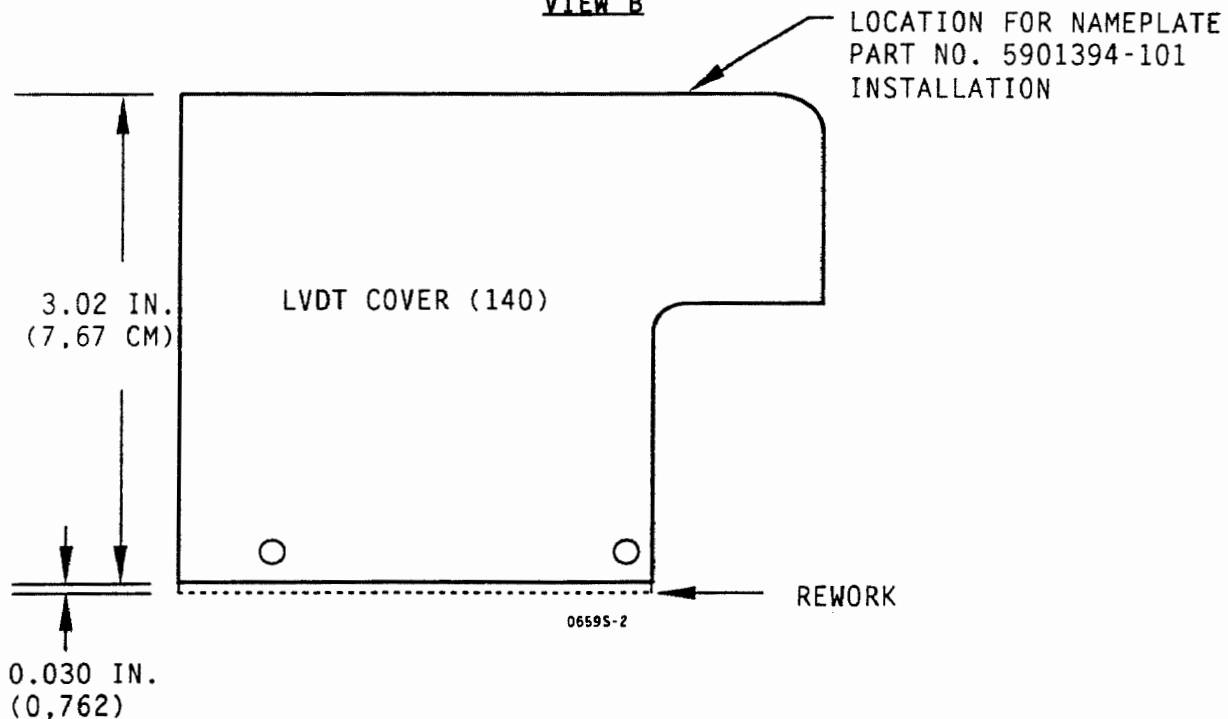
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VIEW A



- ⚠ THE 5860017-111 ACTUATOR REQUIRES THE REPLACEMENT OF FOUR WASHERS (150) WITH FOUR NEW WASHERS P/N NAS620C6 (4 PLACES).

VIEW B



Rework Details
Figure 2

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