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DATE ~~R~~ Aug. 7/03**V2500-A1/A5 NACELLE SERVICE BULLETIN**

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This document transmits Revision 5 to Service Bulletin NV2500-29-0263 and
 Revision 5 to the Supplement

Document History

Service Bulletin Revision Status

Initial Issue	Jul.18/01
Revision 1	Nov.1/01
Revision 2	Nov.14/01
Revision 3	Mar.13/02
Revision 4	Mar.27/03

Supplement Revision Status

Initial Issue	Jul.18/01
Revision 1	Nov.1/01
Revision 2	Nov.14/01
Revision 3	Mar.13/02
Revision 4	Mar.27/03

Bulletin Revision 5

Remove
 All pages of the
 Service Bulletin

Incorporate
 Pages 1 to 12 of the
 Service Bulletin

Reason for change
 To remove unnecessary
 Post-requisite instructions
 requiring internal leak
 checks.

Supplement Revision 5

Remove
 All pages

Incorporate
 Page 1

Reason for change
 To remove unnecessary
 Post-requisite instructions
 requiring internal leak
 checks.

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Transmittal - Page 1 of 2

CHECK THAT ALL PREVIOUS TRANSMITTALS HAVE BEEN INCORPORATED

If any have not been received please advise Publication Services, Rolls-Royce plc, Derby, England

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LIST OF EFFECTIVE PAGES

The effective pages to this Service Bulletin following incorporation of Revision 5 to the Bulletin and Revision 5 to the Supplement are as follows:

<u>Page</u>	<u>Revision Number</u>	<u>Revision Date</u>
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Bulletin

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R	11	5	Aug.7/03
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Supplement

R	1	5	Aug.7/03
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NACELLE – HYDRAULIC POWER – LOW PRESSURE (LP) HYDRAULIC SWITCH – INSTALLATION OF NEW FLEXIBLE HOSE ASSEMBLY AND SUPPORT BRACKET

1. Planning Information

A. Effectivity

(1) Aircraft:

- (a) Airbus A319
- (b) Airbus A320
- (c) Airbus A321

(2) Nacelle:

- (a) All V2500-A1 Engine Buildup Units.
- (b) All V2522-A5 Engine Buildup Units – prior to 0850001.
- (c) All V2524-A5 Engine Buildup Units – prior to 0850001.
- (d) All V2527-A5 Engine Buildup Units – prior to 0850001.
- (e) All V2527E-A5 Engine Buildup Units – prior to 0850001.
- (f) All V2527M-A5 Engine Buildup Units – prior to 0850001.
- (g) All V2530-A5 Engine Buildup Units – prior to 0850001.
- (h) All V2533-A5 Engine Buildup Units – prior to 0850001.

B. Concurrent Requirements

Service Bulletin V2500-NAC-29-0262 must be done prior to, or concurrently with this modification.

C. Reason

(1) Condition

IAE V2500 Operators have reported low reliability of the LP Hydraulic Pressure Switch, Investigation results have revealed a pressure pulsation level higher than expected at the hydraulic installation of the Pressure Switch.



(2) There have been several reports of:

- (a) Internal leakage (rupture of the diaphragm) with contamination of the electric part causing erratic switch function.
- (b) Microswitch or electrical connector failure (spurious or no low pressure warning).
- (c) External leakage (body crack, seal damage due to loose connection).

Service Bulletin V2500-NAC-29-0262 was introduced as a fix for external leaks due to loose connections. However, there is still a possibility of internal leakage and external leakage due to body cracks and microswitch or electrical connector failure.

(3) Objectives

To introduce a new Flexible Hose Assembly and Support Bracket to the LP Hydraulic Pressure Switch Hydraulic System. The new Flexible Hose Assembly has a restricted aperture which will dampen pressure pulsations and improve the LP Hydraulic Pressure Switch reliability.

(4) Substantiation

The new configuration has demonstrated a reduction in the effect of hydraulic pump ripple at the LP Hydraulic Switch during ground and flight test trials.

(5) Effect of Bulletin on:

(a) Removal/Installation

Affected

(b) Disassembly/Assembly

Affected

(c) Cleaning

Not affected

(d) Inspection/Check

Not affected

(e) Repair

Not affected



(f) Testing

Not affected

(6) Supplemental Information

None.

D. Description

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

- (a) The Flexible Hose Assembly fitted from the Pressure Pipe Assembly to the LP Hydraulic Switch is removed and replaced with a new Flexible Hose Assembly.
- (b) A new Support Bracket is installed to the A1 Flange immediately below the Raft Assembly.
- (c) The new P-Clip is fitted to the LP Hydraulic Switch and secured to the new Support Bracket with the new Bolt and Nut.

E. Approval

The technical content of this Service Bulletin has been approved under the authority of the DGAC Design Organisation Approval No. F.J.A.02.

F. Compliance

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

G. Manpower

Estimated man-hours to incorporate the intent of this Service Bulletin on each engine:

(1) At overhaul

0.75 M/Hr

NOTE: Manhours are provided for planning purposes only. No labor reimbursement is provided under the terms of this service bulletin offering.



H. Material Cost and Availability

The parts to accomplish this Service Bulletin are available from the manufacturer as Kit No V2529263-551.

Operators with units listed in Paragraph 1.A. should submit a purchase order for the applicable quantity of kits. The purchase order must specify this Service Bulletin number and the parts listed herein. Operators will have one year from the issue date of this Service Bulletin to place an order. After one year, kits will no longer be available and operators will have to order parts individually at catalog prices.

Direct request to:

BF Goodrich Aerospace

850 Lagoon Drive

Chula Vista, CA 91910-2098 USA

Attn: Airline Account Manager - MZ 107A (Service Bulletin No. V2500-NAC-29-0263)

I. Tooling - Cost and Availability

None.

J. Weight and Balance

(1) Weight change

0.18 lb (0.08 Kg)

(2) Moment arm

49.34 in. (1253.24 mm.) Forward of Datum

(3) Datum

Engine Front Mount Centreline (Powerplant Station PPS 100.00)

K. Electrical Load Data

Not affected.

L. References

(1) A320/V2500-A1 A319/A320/A321/V2500-A5 Aircraft Maintenance Manual (M-V2500-1IA) Chapter/Sections 29-00-00, 29-10-00, 29-11-49, 29-13-49, 29-14-00 and 29-24-00.

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- (2) Standard Practices/Processes Manual (SPP-V2500-1IA) Chapter/Sections 70-41-00 and 70-42-05.
- (3) Overhaul Processes and Consumable Index (IAE PCI-V2500-1IA) Section II.
- (4) Service Bulletin V2500-NAC-29-0262.
- (5) A/C Modifications 21948 and 24259.
- (6) Internal Reference No. 00VN200
- (7) ATA Locator - 29-00-00.

M. Other Publications Affected

- (1) A320/V2500-A1/A5 Engine Illustrated Parts Catalog, Chapter/Section 29-11-17, 29-11-49 and 71-51-43.
- (2) A319/A320/A321/V2500-A5 Engine Illustrated Parts Catalog - all variants, Chapter/Section 29-11-17, 29-11-49 and 71-51-43.
- (3) A319/A320/A321/V2500-A5 Powerplant Illustrated Parts Catalog - all variants, Chapter/Section 29-11-17, 29-11-49 and 71-51-43.
- (4) A320/V2500 Power Plant Buildup Manual (PPB-V2500-2IA), Chapter/Section 71-00-02.

**2. Material Information****A. Kits associated with this Bulletin:**

Applicability: For each V2500-A1 or A5 Nacelle to incorporate this Bulletin

NEW PART NO.	QTY	PART TITLE	OLD PART NO.	INSTR DISP
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V2529263-551	1	Kit, Restricted Flexible Hose Assembly		(A)
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Consisting of:

AS62414	1	P-Clip		
AS21409	1	Bolt		
AS41104	1	Nut		
AE707910-2	1	Flexible Hose Assembly		
745-5165-501	1	Support Bracket		
AS21010	2	Bolt		
NAS1149C0463R	2	Washer		
AS20625	2	Nut		

B. Parts affected by this Bulletin

NEW PART NO.	QTY	PART TITLE	OLD PART NO.	INSTR DISP
AS62414 (29-11-17)	1	.P-Clip	--- (01-035)	(B)(S1)
AS21409 (29-11-17)	1	.Bolt	--- (01-040)	(B)(S1)
AS41104 (29-11-17)	1	.Nut	--- (01-045)	(B)(S1)
AE707910-2 (29-11-49)	1	.Flexible Hose Assembly	AE707910-1 (02-500)	(B)(S1)
745-5165-501 (71-51-43)	1	.Support Bracket	--- (05-875)	(B)(S1)
AS21010 (71-51-43)	2	.Bolt	--- (05-876)	(B)(S1)
NAS1149C0463R (71-51-43)	2	.Washer	--- (05-877)	(B)(S1)
AS20625 (71-51-43)	2	.Nut	--- (05-878)	(B)(S1)



C. Instructions/Dispositions Code Statements:

(A) Kit is currently available.

(B) Parts are currently available.

(S1) New parts coded (S1) replace old parts coded (S1) as a complete set per Engine.

D. Materials Required to Incorporate this Service Bulletin:

CoMat 01-076 - Methyl ethyl ketone (MEK)

CoMat 02-099 - Lint free cloth

CoMat 10-039 or 10-040 - Lubricant (Engine Oil)

NOTE: To identify the consumable materials, refer to the Overhaul Processes and Consumable Index PCI-V2500-1IA.



3. Accomplishment Instructions

A. Pre-requisite Instructions

WARNING:

DO NOT TOUCH THE ENGINE COMPONENTS FOR A SHORT TIME AFTER THE ENGINE IS SHUT DOWN. THE COMPONENTS STAY HOT AND CAN CAUSE INJURY.

WARNING:

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN OR IN YOUR EYES. PUT ON PROTECTIVE CLOTHING AND GOGGLES. THE FLUID IS POISONOUS AND CAN GO THROUGH YOUR SKIN AND INTO YOUR BODY. IF YOU GET HYDRAULIC FLUID ON YOUR SKIN OR IN YOUR EYES, FLUSH AWAY WITH WATER. GET MEDICAL HELP IF YOUR SKIN OR EYES BECOME IRRITATED.

CAUTION:

DO NOT LET HYDRAULIC FLUID FALL ONTO THE ENGINE. REMOVE UNWANTED HYDRAULIC IMMEDIATELY. FLUID CAN CAUSE DAMAGE TO THE SURFACE PROTECTION AND SOME PARTS.

- (1) Obey the safety precautions detailed in the A320/V2500-A1 A319/A320/A321/V2500-A5 Aircraft Maintenance Manual, Task 29-00-00-910-002.
- (2) Release the pressure in the Hydraulic System as instructed in the A320/V2500-A1 A319/A320/A321/V2500-A5 Aircraft Maintenance Manual, Task 29-10-00-864-001 (Engine 1) or Task 29-24-00-864-001 (Engine 2).
- (3) Release the pressure in the Hydraulic Reservoir as instructed in the A320/V2500-A1 A319/A320/A321/V2500-A5 Aircraft Maintenance Manual, Task 29-14-00-614-001.

B. Rework Instructions

- (1) Put a clean container in position below the AE707910-1 Flexible Hose Assembly. Refer to Figure 1, view A.

WARNING:

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN OR IN YOUR EYES. PUT ON PROTECTIVE CLOTHING AND GOGGLES. THE FLUID IS POISONOUS AND CAN GO THROUGH YOUR SKIN AND INTO YOUR BODY. IF YOU GET HYDRAULIC FLUID ON YOUR SKIN OR IN YOUR EYES, FLUSH AWAY WITH WATER. GET MEDICAL HELP IF YOUR SKIN OR EYES BECOME IRRITATED.

WARNING:

DO NOT LET HYDRAULIC FLUID FALL ONTO THE ENGINE. REMOVE UNWANTED HYDRAULIC IMMEDIATELY. FLUID CAN CAUSE DAMAGE TO THE SURFACE PROTECTION AND SOME PARTS.



- (2) Disconnect the AE707910-1 Flexible Hose Assembly from the LP Hydraulic Switch and let the hydraulic fluid drain into the container. Put the applicable cover on the Switch opening.
- (3) Disconnect the AE707910-1 Flexible Hose Assembly from the Pressure Pipe Assembly and remove from the Engine. Put the applicable cover on the Pipe Assembly opening.
- (4) Remove the container from the Engine.
- (5) Remove the covers on the Switch and Pipe Assembly openings and connect the AE707910-2 Flexible Hose Assembly as shown. Make sure there is a minimum clearance of 0.25 in. (6,4 mm.) between the new Hose Assembly, the Engine and adjacent structures or components.

CAUTION:

HOLD THE PRESSURE PIPE ASSEMBLY BEFORE YOU TORQUE THE HOSE ASSEMBLY END FITTING. IF YOU DO NOT OBEY THIS INSTRUCTION, DAMAGE TO THE PRESSURE PIPE ASSEMBLY CAN OCCUR.

- (6) Torque the AE707910-2 Flexible Hose Assembly end fitting at the Pipe Assembly to 135 - 145 lbf.in (15,3 - 16,4 Nm) as instructed in the SPP-V2500-1IA Standard Practices/Processes Manual, Chapter 70-41-00.

CAUTION:

HOLD THE FLARELESS UNION ON THE LP HYDRAULIC SWITCH BEFORE YOU TORQUE THE HOSE ASSEMBLY END FITTING. IF YOU DO NOT OBEY THIS INSTRUCTION, DAMAGE TO THE LP HYDRAULIC SWITCH CAN OCCUR.

- (7) Torque the AE707910-2 Flexible Hose Assembly end fitting at the Flareless Union to 135 - 145 lbf.in (15,3 - 16,4 Nm) as instructed in the SPP-V2500-1IA Standard Practices/Processes Manual, Chapter 70-41-00.

WARNING:

SOLVENT (COMAT 01-076) IS FLAMMABLE AND THE VAPOUR IS HARMFUL. USE IN A WELL-VENTILATED AREA. AVOID PROLONGED BREATHING OF VAPOURS OR PROLONGED OR REPEATED CONTACT WITH SKIN. HIGH CONCENTRATIONS MAY CAUSE IMPAIRED JUDGEMENT. PROTECTIVE GLOVES SHOULD BE WORN DURING USE. MAY CAUSE DERMATITIS BY REMOVING SKIN OILS. PRIOR TO USE OF THIS PRODUCT, CAREFULLY READ THE APPLICABLE 'MATERIAL SAFETY DATA SHEET' AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.

- (8) Use a clean, lint free cloth dampened with CoMat 01-076 Solvent to remove all oil, grease, dirt or other contaminants from the surface of the A1 Flange where the new 745-5165-501 Support Bracket is to be installed. Wipe the area dry with a clean, lint free cloth before the CoMat 01-076 evaporates. Refer to Figure 1, view B.



- (9) Lubricate the threads of the two AS21010 Bolts and the AS21409 Bolts with Engine Oil (CoMat 10-039 or 10-040).
- (10) Install the 745-5165-501 Support Bracket to the A1 Flange with the two AS21010 Bolts, NAS1149C0463R Washers and AS20625 Nuts. Torque the Bolts to 63 - 70 lbf.in (7,12 - 7,91 Nm) as instructed in the SPP-V2500-1IA Standard Practices/Processes Manual, Chapter 70-41-00.
- (11) Fit the AS62414 P-Clip to the LP Hydraulic Switch and install to the 745-5165-501 Support Bracket with the AS21409 Bolt and the AS41104 Nut. Torque the Bolt to 40 lbf.in (4,52 Nm) as instructed in the SPP-V2500-1IA Standard Practices/Processes Manual, Chapter 70-41-00.

C. Post-requisite instructions

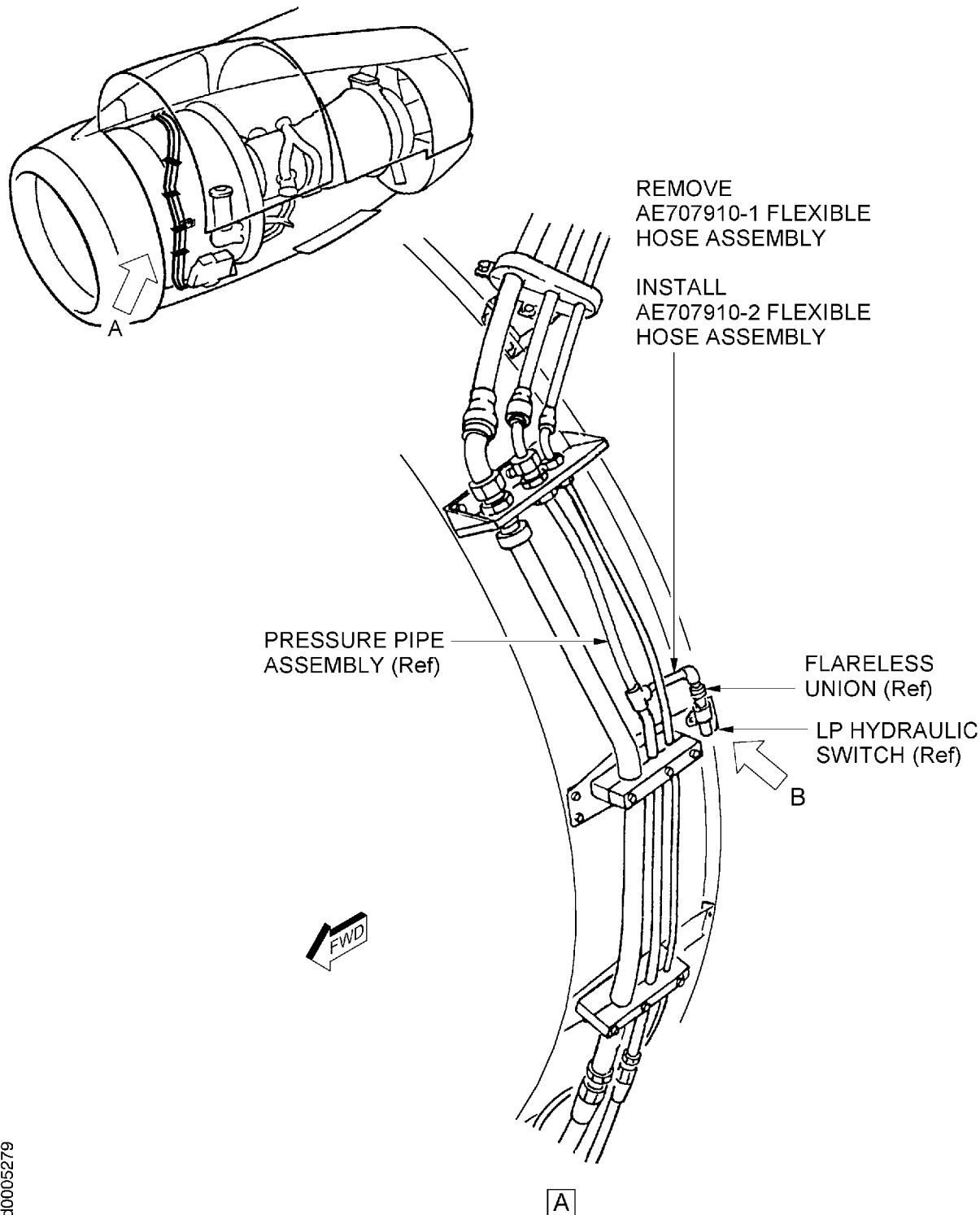
- (1) Check fluid level and pressurize the green or yellow hydraulic system as applicable, with instructions in the A320 Aircraft Maintenance Manual, Task 29-10-00-200-001 and 29-10-00-863-001 or -002.
- (2) Do an operational test of the green or yellow hydraulic system as applicable, with instructions in the A320 Aircraft Maintenance Manual, Task 29-11-00-710-001 and 29-13-00-710-051.
- (3) Check of the external leaks of the hydraulic components as instructed in the A320 Aircraft Maintenance Manual, Task 29-00-00-790-001.

D. Recording Instructions

- (1) A record of accomplishment is necessary. Write in the Engine Log that Service Bulletin V2500-NAC-29-0263 has been done.



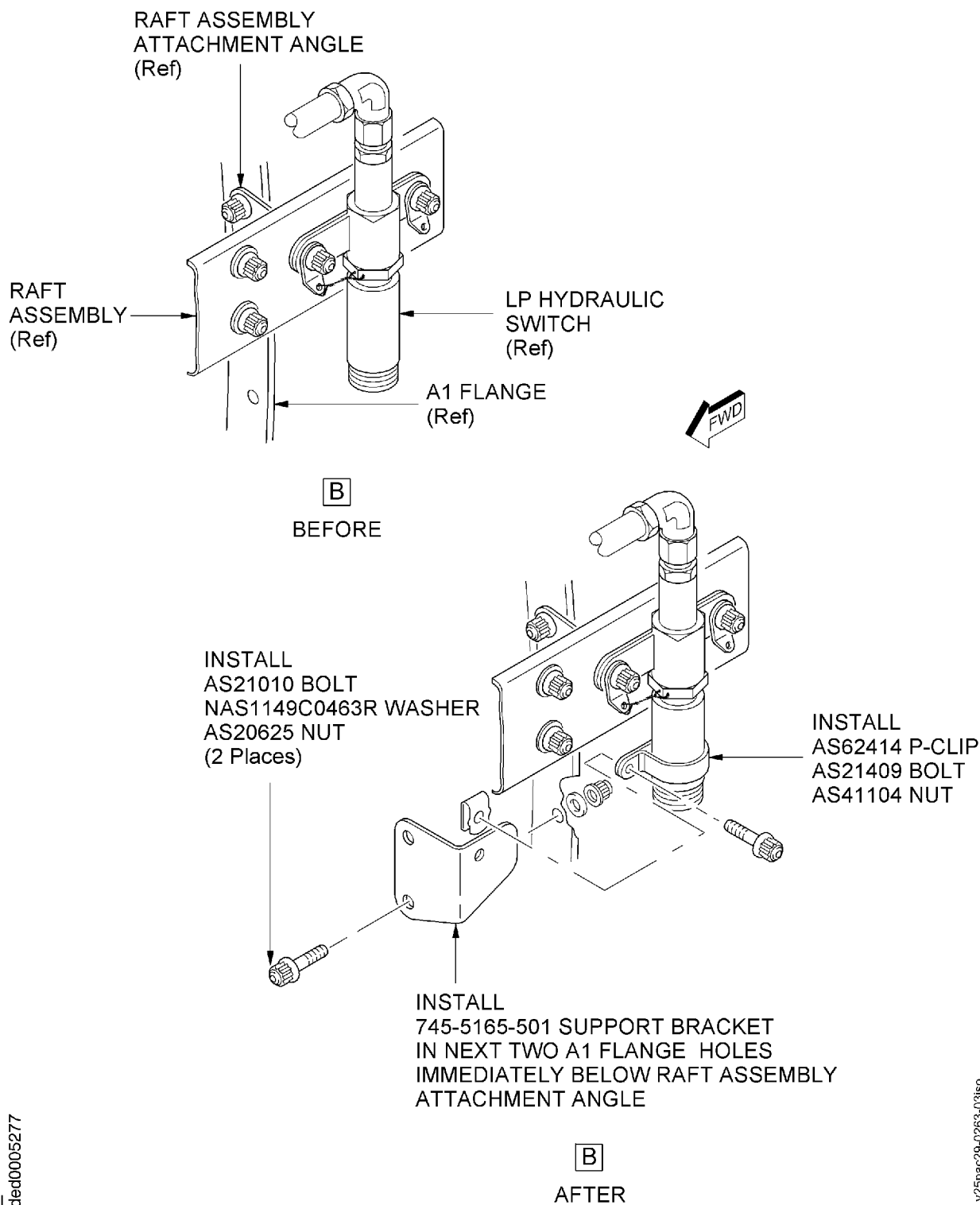
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Installation of the new Flexible Hose Assembly and Support Bracket
Figure 1, Sheet 1 of 2



Installation of the new Flexible Hose Assembly and Support Bracket
Figure 1, Sheet 2 of 2



NACELLE – HYDRAULIC POWER – LOW PRESSURE (LP) HYDRAULIC SWITCH – INSTALLATION OF NEW
FLEXIBLE HOSE ASSEMBLY AND SUPPORT BRACKET

SUPPLEMENT – PRICES AND AVAILABILITY

The prices if shown are for estimating purposes only and as such are given in good faith, without commercial liability for advanced planning purposes only. Refer to IAE Spares and/or current price catalogue for current prices.

1. Modification Kits:

Part No.	Desc.	Unit Price
		US Dollars
V2529263-551	Kit, Restricted Flexible Hose Assembly	Price supplied on request

