

V2500 Propulsion System — Nacelle

SERVICE BULLETIN

NACELLE - EXHAUST - THRUST REVERSER -
HOLD-OPEN ROD AND FITTING -
REPLACEMENT OF

MODEL APPLICATION

V2500-A1

BULLETIN INDEX LOCATOR

78-00-00

Compliance Category Code

4

June 23, 1992

Internal Reference No.

BC/CL 88VN056,
88VN056A

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NOTE:

This Service Bulletin must be incorporated concurrently with IAE Service Bulletin V2500-ENG-72-0107.

1. Planning Information

A. Effectivity

(1) Airplane: Airbus A320

(2) Nacelle: V2500-A1

- (a) The intent of this Service Bulletin was incorporated at the manufacturer on Thrust Reverser Units Serial Nos. 86 and on.

The following Thrust Reversers were not modified at the manufacturer. They can be modified by incorporating this Service Bulletin using Kit V2578001-551

T/R
Serial Number
6-85

- (b) The intent of this Service Bulletin was incorporated at the manufacturer on V2500 Engine Buildup Units (EBU) Serial Nos. 107 and on.

EBU units 86-106 were changed prior to delivery. No operator action is required on these units.

The following EBU Nacelle Serial Numbers were not changed at the manufacturer. They can be modified by incorporating this Service Bulletin using Kit V2578001-553.

EBU
Serial Number
1-85

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B. Reason

(1) Condition

When the thrust reverser halves are open in conditions with wind speeds greater than 45 knots (50 mph) there is a possibility of the hold-open rods disengaging.

(2) Background

The hold-open rods currently specified lack the tension necessary to ensure the thrust reverser halves are retained in the open position in high wind conditions.

(3) Objective

Provide hold-open rods which will maintain the necessary engagement tension in 65 knot (75 mph) winds.

(4) Substantiation

This modification has been shown to be effective in laboratory tests and engineering analysis.

(5) Impact of Bulletin on Workshop Procedures:

Removal/Installation	Not Affected
Disassembly/Assembly	Not Affected
Cleaning	Not Affected
Inspection/Repair	Not Affected
Repair	Not Affected
Testing	Not Affected

(6) Supplemental Information

This Service Bulletin must be incorporated concurrently with Service Bulletin V2500-ENG-72-0107.

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C. Description

- (1) The change introduced by this Bulletin is as follows:

Part One of Service Bulletin:

- (a) Replace the hold-open rods on the thrust reverser and move the hold-open rod retainer clip.

Part Two of Service Bulletin:

- (b) Replace the forward hold-open rod fittings on the fan case. For units 86 to 106, bracket 740-0507-501, -502 was replaced by bracket 740-0507-503, -504 prior to delivery.

NOTE: The aft hold open rod fittings, installed on the engine turbine case, must be replaced by incorporation of Service Bulletin V2500-ENG-72-0107.

D. Approval

The part number changes and/or part modifications described in Paragraphs 2 and 3 of this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA approved for the equipment model(s) listed.

E. Compliance

Category 4

Accomplish at the first visit of the Nacelle or Nacelle Component to a maintenance base capable of compliance with the accomplishment instructions regardless of the planned maintenance action for the Nacelle or Nacelle Component.

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F. Manpower

Estimated Manhours to incorporate the full intent of this Bulletin:

	<u>VENUE</u>	<u>ESTIMATED MANHOURS</u>
(1) In Service		
(a) To gain access		0.2 M/Hrs
(b) To embody		2.0 M/Hrs
(c) To return Nacelle to service		0.2 M/Hrs
	Total	2.4 M/Hrs

G. Material Cost and Availability

The parts to accomplish this Service Bulletin are available from the manufacturer as Kits V2578001-551 and -553.

Operators with units listed in Paragraph 1.A should submit a no-charge purchase order for the applicable quantity of kits. The purchase order must specify this service bulletin number and only the parts listed herein. Delivery schedules will be furnished to operators upon receipt of their written request.

Direct Purchase order to:

Rohr International Sales Corporation
P.O. Box 878
Chula Vista, CA 91912-0878
U.S.A.
Attn: Manager, Spares Operations - Warranty
(Service Bulletin No V2500-NAC-78-0001)

H. Tooling Cost and Availability

None Required

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I. Weight and Balance

- (1) Weight change None
- (2) Moment arm No effect
- (3) Datum Engine Front Mount Centerline
..... (Power plant Station PPS 100.00)

J. Electrical Load Data

Not affected.

K. References

A320 Aircraft Maintenance Manual 78-32-00

L. Other Publications Affected

A320 Power Plant Illustrated Parts Catalog 71-00-21
78-31-01
78-32-02
78-32-03
78-32-04
78-32-50
78-32-51

V2500 Engine Illustrated Parts Catalog 71-00-21
72-32-00

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NOTE:

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2. Accomplishment Instructions

A. Prerequisite Instructions

WARNING: ENSURE THRUST REVERSER HALVES ARE PROPERLY SUPPORTED BEFORE THE START OF THIS PROCEDURE. FAILURE TO DO SO COULD RESULT IN INJURY OR DEATH.

- (1) Open left and right thrust reverser halves as specified in the A320 Aircraft Maintenance Manual, Task 78-32-00-010-010.

PART ONE OF SERVICE BULLETIN

B. Rework of Thrust Reverser with Kit V2578001-551.

- (1) Replacement of forward and aft hold-open rods. (Refer to Figure 1).
- (a) Remove cotter pin, washer, and pin which attaches the forward hold-open rod to the forward hold-open rod fitting. Keep the pin and washer, discard the cotter pin.
- Return the A3081-1 hold-open rod to the manufacturer. Refer to paragraph 3.E for address.
- (b) Put A3081-2 forward hold-open rod on the forward hold-open rod fitting. Attach the rod to the fitting with MS20392-2C26 pin, AN960C10L washer, and MS24665-151 cotter pin.
- (c) Remove the nut, bushing, and washers which attach the aft hold-open rod to aft hold-open rod fitting. Keep the hardware. Return the A3080-2 hold-open rod to the manufacturer. Refer to Paragraph 3.E for address.
- (d) Put the A3080-4 aft hold-open rod on the aft hold-open rod fitting. Attach with U500-0210S washer, S700B0116-6C14 bushing, AN960KD616L washer, and MS21042L6 nut. Torque nut to 160-190 lb-in. (18.1-21.5 N.m).

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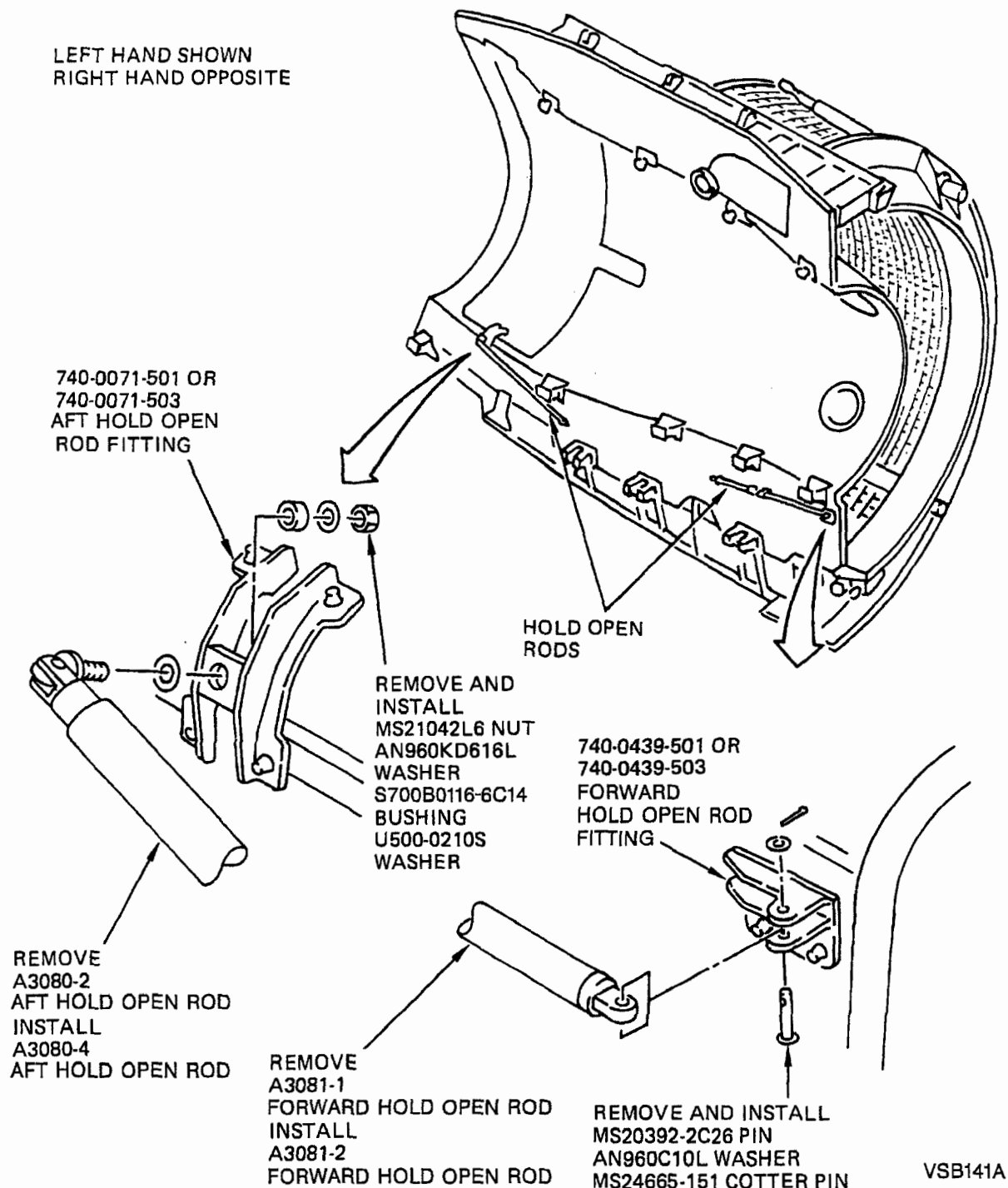
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LEFT HAND SHOWN
RIGHT HAND OPPOSITE



Replacement of Forward and Aft Hold Open Rods on Thrust Reverser

Figure 1

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- (2) Relocation of aft hold open-rod clip. (Refer to figure 2).
- (a) Find the aft hold open-rod clip assembly on the C-duct fixed inner panel.
 - (b) Remove three nuts and bolts which attach the clip to the panel. Remove clip, keep the clip and hardware.

WARNING: METHYL ISOBUTYL KETONE (MIBK) IS FLAMMABLE AND VAPOR IS HARMFUL. USE IN A WELL VENTILATED AREA. AVOID PROLONGED BREATHING OF VAPORS OR PROLONGED OR REPEATED CONTACT WITH SKIN. MAY CAUSE IRRITATION OF EYES, NOSE, THROAT, AND 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, READ THE "MATERIAL SAFETY DATA SHEET" AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.

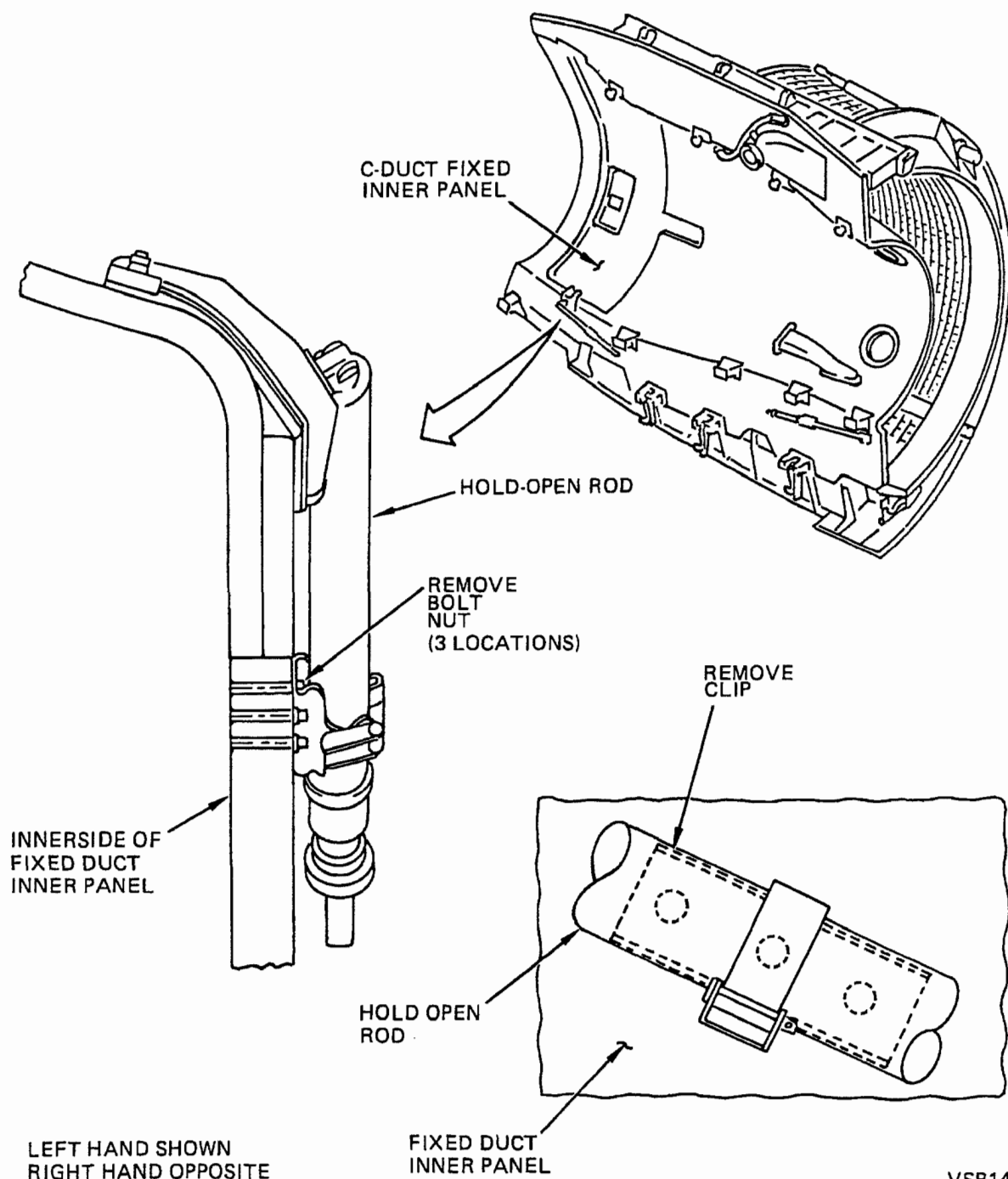
- (c) Wipe clean the holes where the clip was attached to the panel. Use a clean cloth or swab wet with methyl isobutyl ketone (MIBK). Wipe clean before solvent dries.

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VSB142/

Removal of Aft Hold Open Rod Clip
Figure 2

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WARNING: PROLONGED OR REPEATED CONTACT OF EPOCAST H1843 POTTING COMPOUND AND HARDENER 9216 WITH THE SKIN, BREATHING OF VAPORS OR INGESTION MAY CAUSE SERIOUS INJURY. ALL MIXING MUST BE DONE IN A WELL-VENTILATED AREA. WORK PERFORMED IN CONFINED AREAS REQUIRES ADDITIONAL FORCED MECHANICAL VENTILATION. REGULATORY AGENCY APPROVED RESPIRATORY PROTECTION REQUIRED IN ABSENCE OF ADEQUATE MECHANICAL VENTILATION. AVOID BREATHING OF VAPOR AND ALL CONTACT WITH SKIN AND EYES. IF CONTACT OCCURS, WASH AREA IMMEDIATELY WITH SOAP AND WATER. PROTECTIVE GLOVES SHOULD BE WORN DURING USE. PROLONGED OR REPEATED CONTACT WITH THIS RESIN MAY RESULT IN A PERMANENT SKIN ALLERGY. NONCOMPLIANCE COULD CAUSE PERSONAL INJURY. PRIOR TO USE OF THIS PRODUCT, READ THE "MATERIAL SAFETY DATA SHEET" AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.

- (d) Mix Epocast H1843 potting compound and 9216 hardener in accordance with the manufacturer's instructions.
- (e) Fill the lower two of the holes in the panel where the clip was attached. Wipe off excess material before it dries. (Refer to Figure 3).
- (f) Cure the potting compound for three hours at 250°F (121°C) with heat lamps.
- (g) Line up the lower hole of the clip with the upper hole in the panel.
- (h) Attach the clip to the panel with NAS8803-18 bolt and MS21042L3 nut. Tighten the nut by hand.
- (i) Snap the hold-open rod into the clip.
- (j) Mark the location of the clip's two remaining holes on the panel.
- (k) Remove the clip, and drill the marked holes through with 0.192-0.198 inch (4.8-5.0 mm) diameter drill. Remove the burr from the holes.
- (l) Countersink the two holes on the outer side of the panel 100 degrees by 0.049 inch (1.25 mm) deep.
- (m) Remove the nut and bolt which attaches the clip to the panel.

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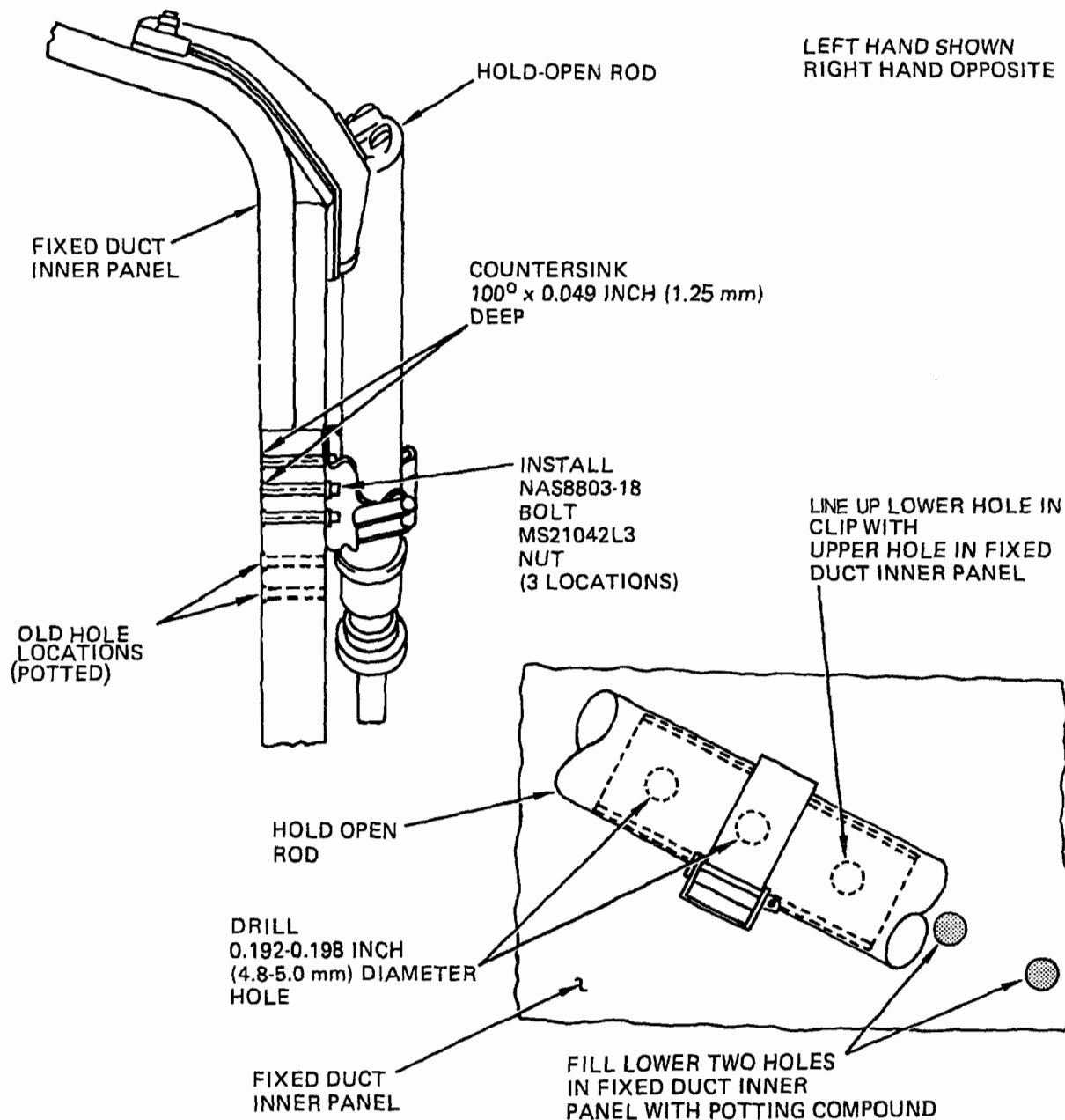
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VS8143A

Reinstallation of Aft Hold Open Rod Clip
Figure 3

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WARNING: 463-6-27 BASE, X337 CONVERTER, AND TL52-66 THINNER ARE FLAMMABLE AND VAPOR IS HARMFUL. INHALATION OF SPRAY MIST MAY CAUSE SERIOUS BODILY HARM. AVOID SOURCES OF IGNITION. USE ONLY IN AREAS WITH ADEQUATE VENTILATION. WORK PERFORMED IN CONFINED AREA REQUIRES THE USE OF ADDITIONAL FORCED MECHANICAL VENTILATION. AVOID BREATHING OF VAPOR AND CONTACT WITH SKIN AND EYES. MAY CAUSE IRRITATION TO SKIN AND EYES. SEVERE OVEREXPOSURE MAY CAUSE FATIGUE, WEAKNESS, CONFUSION, HEADACHE, DIZZINESS, DROWSINESS, AND IMPAIRED JUDGEMENT. USE REGULATORY AGENCY APPROVED RESPIRATORY PROTECTION FOR SPRAY APPLICATIONS. THIS PRODUCT CONTAINS LEAD, A CUMULATIVE POISON. WASH HANDS WELL BEFORE EATING, DRINKING, OR SMOKING. PROTECTIVE GLOVES SHOULD BE WORN DURING MIXING AND APPLICATION. PROLONGED OR REPEATED CONTACT WITH THIS EPOXY PRIMER MAY RESULT IN A PERMANENT SKIN ALLERGY TO 463-6-27 BASE AND X337 CONVERTER. PRIOR TO USE OF THIS PRODUCT, CAREFULLY READ THE APPLICABLE 'MATERIAL SAFETY DATA SHEET' AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.

- (n) Mix 463-6-27 primer, X337 converter and TL52 thinner in accordance with manufacturer's instructions.
- (o) Wet install clip to panel with three NAS8803-18 bolts and three MS21042L3 nuts. Torque nuts to 20-25 lb-in (2.3-2.8 N.m).

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PART TWO OF SERVICE BULLETIN

- (3) Rework of Fan Case with Kit V2578001-553 (Refer to Figure 4).
 - (a) Find the forward fan case hold open rod fittings forward of flange G on the fan case.
 - (b) Remove the bolts and washers which attach the fittings to the fan case. Keep the washers; discard the bolts and fittings.
 - (c) Put the 740-0507-503 fitting on the left side of the fan case and the 740-0507-504 fitting on the right side of the fan case.
 - (d) Attach the fittings to the fan case with three AS21118 bolts and the washers removed in step (b). Torque the bolts to 85-95 lb-in (9.6-10.7 N.m).

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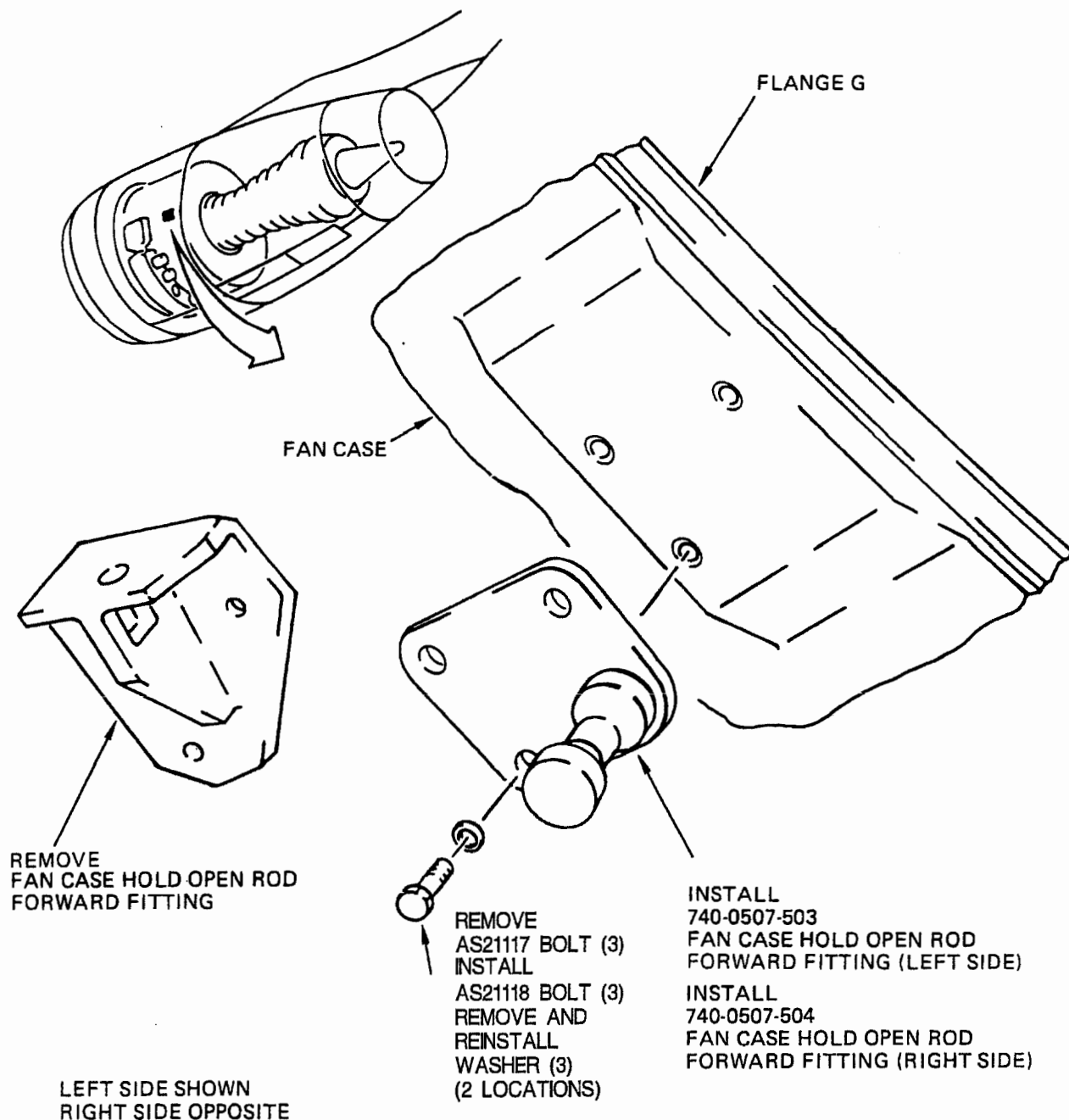
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VSB181A

Removal and Installation of Bracket
Figure 4

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(4) Reidentify the thrust reverser halves on No. 1 and No. 2 engine as follows:

	From	To
Engine 1, Left Hand	740-0002-529	740-0002-653
	740-0002-537	740-0002-661
	740-0002-545	740-0002-669
	740-0002-561	740-0002-681
	740-0002-565	740-0002-685
	740-0002-569	740-0002-689
Engine 1, Right Hand	740-0002-531	740-0002-655
	740-0002-539	740-0002-663
	740-0002-547	740-0002-671
	740-0002-555	740-0002-677
Engine 2, Left Hand	740-0002-533	740-0002-657
	740-0002-541	740-0002-665
	740-0002-549	740-0002-673
	740-0002-563	740-0002-683
	740-0002-567	740-0002-687
	740-0002-571	740-0002-691
Engine 2, Right Hand	740-0002-535	740-0002-659
	740-0002-543	740-0002-667
	740-0002-551	740-0002-675
	740-0002-559	740-0002-679

C. Post-requisite Instructions

- (1) Close left and right thrust reverser halves as specified in the A320/V2500 Aircraft Maintenance Manual, Task 78-32-00-410-010.

D. Recording Instructions

A record of accomplishment is required.

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3. Material Information

NEW PART NO. (ATA NO.)	QTY	EST'D UNIT PRICE (\$)	KEYWORD	OLD PART NO. (IPC NO.)	INSTR/ DISPOS
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Applicability: For each V2500 Nacelle to incorporate this Bulletin

A. Kits associated with this Bulletin

V2578001-551 Consisting of:	1		Kit		(A)
A3081-2	2		Rod		(B)
A3080-4	2		Rod		(B)
V2578001-553 Consisting of:	1		Kit		(A)
740-0507-503	1		Fitting		(B)
740-0507-504	1		Fitting		(B)
AS21118	6		Bolt		(B)

B. Parts affected by this Bulletin

740-0002-653 (78-32-01)	1	Thrust Reverser	740-0002-529 (01-010)	(3D)
740-0002-661 (78-32-01)	1	Thrust Reverser	740-0002-537 (01-010)	(3D)
740-0002-669 (78-32-01)	1	Thrust Reverser	740-0002-545 (01-010)	(3D)
740-0002-681 (78-32-01)	1	Thrust Reverser	740-0002-561 (01-010)	(3D)
740-0002-685 (78-32-01)	1	Thrust Reverser	740-0002-565 (01-010)	(3D)
740-0002-689 (78-32-01)	1	Thrust Reverser	740-0002-569 (01-010)	(3D)
740-0002-655 (78-32-03)	1	Thrust Reverser	740-0002-531 (01-010)	(3D)
740-0002-663 (78-32-03)	1	Thrust Reverser	740-0002-539 (01-010)	(3D)

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<u>NEW PART NO.</u> <u>(ATA NO.)</u>	<u>QTY</u>	<u>EST'D UNIT</u> <u>PRICE (\$)</u>	<u>KEYWORD</u>	<u>OLD PART NO.</u> <u>(IPC NO.)</u>	<u>INSTR/</u> <u>DISPOS</u>
740-0002-671 (78-32-03)	1		Thrust Reverser	740-0002-547 (01-010)	(3D)
740-0002-677 (78-32-03)	1		Thrust Reverser	740-0002-555 (01-010)	(3D)
740-0002-657 (78-32-02)	1		Thrust Reverser	740-0002-533 (01-010)	(3D)
740-0002-665 (78-32-02)	1		Thrust Reverser	740-0002-541 (01-010)	(3D)
740-0002-673 (78-32-02)	1		Thrust Reverser	740-0002-549 (01-010)	(3D)
740-0002-683 (78-32-02)	1		Thrust Reverser	740-0002-563 (01-010)	(3D)
740-0002-687 (78-32-02)	1		Thrust Reverser	740-0002-567 (01-010)	(3D)
740-0002-691 (78-32-02)	1		Thrust Reverser	740-0002-571 (01-010)	(3D)
740-0002-659 (78-32-04)	1		Thrust Reverser	740-0002-535 (01-010)	(3D)
740-0002-667 (78-32-04)	1		Thrust Reverser	740-0002-543 (01-010)	(3D)
740-0002-675 (78-32-04)	1		Thrust Reverser	740-0002-551 (01-010)	(3D)
740-0002-679 (78-32-04)	1		Thrust Reverser	740-0002-559 (01-010)	(3D)
740-0507-501 (71-00-21)	1		Fitting	740-0380-505 (01-010)	(F)
740-0507-503 (71-00-21)	1		Fitting	740-0507-501 (01-010)	(E)(S1)(B)(C) (G)
740-0507-502 (71-00-21)	1		Fitting	740-0380-506 (01-020)	(F)
740-0507-504 (71-00-21)	1		Fitting	740-0507-502 (01-020)	(E)(S1)(B)(C) (G)
A3080-4 (78-32-50)	2		Rod	A3080-2 (01-010) (01-020)	(E)(S1)(B)(C)
A3081-2 (78-32-51)	2		Rod	A3081-1 (01-010) (01-020)	(E)(S1)(B)(C)
AS21118 (72-32-00)	6		Bolt	AS21117 (01-540)	(E)(S1)(B)(1D)

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C. Instruction/Disposition Code Statements

- (A) Kit is available.
- (B) New part is currently available for sale.
- (C) Old part no longer available for sale.
- (1D) Part deleted.
- (3D) Rework old part but refer to Service Bulletin V2500-78-0047 for reidentification.
- (E) New part supplied as detail of the kit.
- (F) New part replaces old part and is replaced by parts coded (G).
- (G) New part replace parts coded (C).
- (S1) New parts coded S1 must replace old parts coded S1 as a complete set.

D. These materials are to be procured by the Operator or obtained from his stock.

<u>Part Number</u>	<u>Keyword</u>	<u>Qty</u>	<u>Source</u>	<u>Code</u>
Methyl Isobutyl Ketone (MIBK)	Solvent	AN	Commercially Available	--
463-6-27 X337 TL52	Base Converter Thinner	AN	Sikkens Aerospace Finishes 20846 S. Normandie Ave. Torrance, CA 90502	98502
Epocast H1843 9216	Potting comp. Hardener	AN	Furane Plastics Inc. 5121 San Fernando Rd, West Los Angeles, CA 90039	2G246
MS24665-151	Cotter Pin	AN	Commercially Available	--

E. Return A3081-1 and A3080-2 hold-open rods to:

Norco Inc.
P.O. Box 405
Georgetown, CT 06829

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