SERVICE BULLETIN

Number: V2500-NAC-71-0282

Summary

Date: April 3, 2001

ATA System: 71-11

Internal Reference No.

JG 00VN809

SUBJECT: NOSE COWL - FORWARD AND REAR BULKHEAD FITTINGS, THERMAL ANTI-ICE DUCT , NOSE COWL - MODIFICATION OF

BACKGROUND

GENERAL:

Nose cowls have been found with worn thermal anti-ice duct forward and aft bulkhead fittings.

This service bulletin provides instructions to modify the forward and aft bulkhead fittings.

ACTION:

Remove, modify, and re-install the thermal anti-ice duct forward and aft bulkhead fittings.

COMPLIANCE:

Category 5

Accomplish when the nacelle component is disassembled sufficiently to afford access to the affected subassembly and to all affected spare subassemblies.

EFFECTIVITY:

V2500-D5 nose cowl serial numbers prior to 0246001.

MANPOWER:

Manpower necessary to incorporate Service Bulletin is 10.0 manhours for each nose cowl.

MATERIAL INFORMATION:

No parts are required to perform this service bulletin.

"MODIFICATION SERVICE BULLETIN" - "NACELLE - EXHAUST - FORWARD AND REAR BULKHEAD FITTINGS, THERMAL ANTI-ICE DUCT, NOSE COWL - MODIFICATION OF"

1. PLANNING INFORMATION

A. Effectivity

(1) Airplane: MD-90

(2) Nacelle: V2500-D5 nose cowls serial numbers prior to 0246001.

B. Concurrent Requirements

It is necessary to do Service Bulletin V2500-NAC-71-0232 before or at the same time as this Service Bulletin.

C. Reason

(1) Problem

(a) The nose cowl thermal anti-ice duct forward and aft bulkead fittings can become worn in service. This wear allows leakage of anti-ice air into the space between the inner and outer ducts which contributes to T.A.I. system overpressure indications.

(2) Cause

(a) The material compatability between the forward and aft bulkhead fittings and the seals may cause wear.

(3) Background

(a) Nose cowls have been found with worn forward and aft bulkhead fittings.

(4) Objective

(a) The changes in configuration recommended in this Service Bulletin are intended to maintain reliability of the nose cowl by improving the durability of the fittings and de-sensitizing the T.A.I. system to overpressure indications.

(5) Substantiation

(a) By analysis.

D. Description

This service bulletin provides instructions for removal, modification, and installation of the thermal anti-ice duct forward and aft bulkhead fittings.

E. Compliance

Category 5

Accomplish when the nacelle component is disassembled sufficiently to afford access to the affected subassembly and to all affected spare subassemblies.

F. Approval

Incorporation of this Service Bulletin must be accomplished only in conjunction with Boeing Service Bulletin MD90-71-013 which has received exclusive FAA approval for MD-90 Series aircraft.

G. Manpower

Estimated manhours to incorporate the full intent of this Service Bulletin.

VENUE	EST'D MAN HOURS
(1) In Service	N/A
(2) In Shop	
(a) To modify	10.0 hours
Total	10.0 hours per nacelle (20.0 hours per aircraft)

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

H. Material Cost and Availability

No parts are required to accomplish this service bulletin.

I. Tooling

None.

J. Weight and Balance

1)	Weight change	None
2)	Moment Arm	No effect
3)	Datum	Engine front mount centreline (Powerplant Station PS 100)

K. References

Publication	Chapter/Section
IAE Standard Practices/Processes Manual (SPP-V2500-1IA)	70-09-00 70-34-03
Overhaul Processes and Consumables Index (PCI-V2500-1IA)	
IAE Service Bulletin V2500-NAC-71-0232	

L. Other Publications Affected

Publication	Chapter/Section
Nose Cowl Assembly Component Maintenance Manual (CMM-NC-V2500-3IA)	71-11-11

2. Material Information

A. Material Requirements

(1) The following is applicable to one nose cowl.

B. Kits necessary for this Service Bulletin:

None.

C. Parts affected by this Service Bulletin:

NEW PNUMBER (ATA NUMBER)	QTY	ESTD UNIT PRICE	KEYWORD	OLD PNNUMBER (IPC NUMBER)	INSTR/ DISPOS
290-3394-503 (71-11-11)	1		Rear Bulkhead Outer Duct Assy	290-3394-501 (10-250)	(A)(1D) (S1)
290-3395-507 (71-11-11)	1		Bulkhead Fitting Assy	290-3395-505 290-3004-1AE (12-185)	(A)(1D) (S1)
290-3398-507 (71-11-11)	1		Rear Bulkhead Fitting	290-3398-505 (10-240)	(A)(1D) (S1)

D. Instructions/Disposition Codes:

(A) Old part number will no longer be available

(1D) Old part can be re-worked and re-identified to new part number.

(S1) New part can be used in place of old part but not vice-versa.

E. Tooling - Price and Availability:

None.

F. Materials Required to do this Service Bulletin:

CoMat 03-065	Plasma Spray Coating
CoMat 06-073	Metal Marking Ink

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

3. Accomplishment Instructions

A. Remove the T.A.I. duct and the inner and outer rear bulkhead duct assemblies. Refer to Figure 1.

(1) Loosen the P29C43 V-clamp at the forward bulkhead fitting.

(2) Remove the fifteen NAS6703U8 bolts and AN960C10L washers and the 290-3398-505 inner rear bulkhead fitting, the 290-3394-501 rear bulkhead outer duct assembly, and the 290-3231-501 support bracket from the aft bulkhead.

(3) Remove the T.A.I. duct aft through the nose cowl aft bulkhead.

B. Remove the 290-3395-505 or 290-3004-1AE forward bulkhead fitting. Refer to Figure 1.

(1) Remove the NAS6703U3 bolts, NAS65703U4 bolts, AN960C10L washers, and the 290-3395-505 or 290-3004-1AE bulkhead fitting from the forward bulkhead.

(2) Remove the A19791/A 3-ring seal and the A19791/D d-ring seal from the 290-3395-505 or 290-3004-1AE bulkhead fitting.

C. Modify the 290-3395-505 or 290-3004-1AE forward bulkhead fitting.

(1) Apply plasma spray coating (CoMat 03-065)(tungsten carbide/ cobalt) to the 290-3395-505 or 290-3004-1AE fitting. Refer to the Standard Practices/Processes Manual (SPP-V2500-1IA), Chapter 70-34-03. Maintain minimum coating thickness of 0.006 inch (0,152 mm) and surface finish of 125RA after machining to final dimensions. Refer to Figure 1 (sheet 3).

NOTE: It may be necessary to remove material from the fitting before you apply the plasma spray coating so that the minimum thickness of the coating is 0.006 inch (0,152 mm) after machining to final dimensions shown in Figure 1 (sheet 3).

(2) Drill 16 holes through the 290-3395-505 or 290-3004-1AE forward bulkhead fitting. Refer to Figure 1 (sheet 5).

(3) Re-identify the 290-3395-505 or 290-3004-1AE forward bulkhead fitting as the 290-3395-507. Use a rubber stamp and marking ink (CoMat 06-073). Refer to the Standard Practices/Processes Manual (SPP-V2500-1IA), Chapter 70-09-00.

D. Modify the 290-3394-501 rear bulkhead outer duct assembly.

(1) Apply plasma spray coating (CoMat 03-065)(tungsten carbide/ cobalt) to the 290-3394-501 assembly. Refer to the Standard Practices/Processes Manual (SPP-V2500-1IA), Chapter 70-34-03. Maintain minimum coating thickness of 0.006 inch (0,152 mm) and surface finish of 125RA after machining to final dimensions. Refer to Figure 1 (sheet 6).

NOTE: It may be necessary to remove material from the assembly before you apply the plasma spray coating so that the minimum thickness of the coating is 0.006 inch (0,152 mm) after machining to final dimensions shown in Figure 1 (sheet 6).

(2) Re-identify the 290-3394-501 rear bulkhead outer duct assembly as the 290-3394-503. Use a rubber stamp and marking ink (CoMat 06-073). Refer to the Standard Practices/Processes Manual (SPP-V2500-1IA), Chapter 70-09-00.

E. Modify the 290-3398-505 inner rear bulkhead fitting.

(1) Apply plasma spray coating (CoMat 03-065)(tungsten carbide/ cobalt) to the 290-3398-505 fitting. Refer to the Standard Practices/Processes Manual (SPP-V2500-1IA), Chapter 70-34-03. Maintain minimum coating thickness of 0.006 inch (0,152 mm) and surface finish of 125RA after machining to final dimensions. Refer to Figure 1 (sheet 7).

NOTE: It may be necessary to remove material from the fitting before you apply the plasma spray coating so that the minimum thickness of the coating is 0.006 inch (0,152 mm) after machining to final dimensions shown in Figure 1 (sheet 7).

(2) Re-identify the 290-3398-505 inner rear bulkhead fitting as the 290-3398-507. Use a rubber stamp and marking ink (CoMat 06-073). Refer to the Standard Practices/Processes Manual (SPP-V2500-1IA), Chapter 70-09-00.

F. Install the 290-3395-507 forward bulkhead fitting.

WARNING: JOINTING COMPOUND (COMAT 04-005) IS CLASSIFIED AS A HAZARDOUS MATERIAL AND MAY CAUSE INJURY OR ILLNESS IF NOT PROPERLY USED. THIS PRODUCT SHOULD BE USED ONLY IN ACCORDANCE WITH THE MANUFACTURE'S SPECIFIC SAFETY AND HEALTH RECOMMENDATIONS. PRIOR TO USE OF THIS PRODUCT, CAREFULLY READ THE APPLICABLE "MATERIAL SAFETY DATA SHEET" AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.

(1) Apply jointing compound (CoMat 04-005) to the eight NAS6703U3 bolts, the eight NAS6703U4 bolts, and the mating surfaces of the 290-3395-507 forward bulkhead fitting and the forward bulkhead.

(2) Install one each of the 2.75 inch (69,85 mm) diameter A1971/D d-ring seals in the forward recess and one 2.75 inch (69,85 mm) diameter A19791/A 3-ring seal in the aft recess of the forward bulkhead fitting. Make sure the gaps on the 3-ring seals are rotated 120 degrees from each other. Refer to Figure 1 (sheet 2).

(3) Install the 290-3395-507 forward bulkhead fitting on the forward bulkhead with the AN960C10L washers, NAS6703U3 bolts, and NAS6703U4 bolts. Torque the bolts to 40 in-lbs (4,52 Nm).

G. Install the T.A.I. duct, the 290-3398-507 inner rear bulkhead fitting, and the 290-3394-503 outer rear bulkhead duct assembly.

(1) Install the 290-3416-501 inner duct and then the 290-3417-503 outer duct on the 290-3395-507 fitting at the forward bulkhead. Make sure the seals remain in the proper position on the fitting when you install the ducts. Refer to Figure 1 (sheet 2).

(2) Loosely install the P29C43 V-clamp on the forward end of the 290-3417-503 duct and flange of the 290-3395-507 fitting at the forward bulkhead. Position the tightening feature of the clamp so it is accessible from the access panel opening. Refer to Figure 1 (sheet 2).

(3) Install the 3.75 inch (95,25 mm) diameter A19792/D d-ring seal (aft most recess on the 290-3394-503 outer rear bulkhead duct assembly) and the 3.75 inch (95,25 mm) diameter A19792/A 3-ring seals (forward most recess on the outer rear bulkhead duct assembly). Make sure the gaps on the 3-ring seals are rotated 120 degrees from each other. Refer to Figure 1 (sheet 6).

(4) Install the 2.75 inch (69,85 mm) diameter A19791/D d-ring seal (aft most recess on the 290-290-3398-507 inner rear bulkhead fitting) and the 2.75 inch (69,85 mm) diameter A19791/A 3-ring seals (forward most recess on the inner rear bulkhead fitting). Make sure the gaps on the 3-ring seals are rotated 120 degrees from each other. Refer to Figure 1 (sheet 7).

(5) Apply jointing compound (CoMat 04-005) to the mating surfaces of the 290-3394-503 outer rear bulkhead duct assembly and the 290-3398-507 inner rear bulkhead fitting.

(6) Put the 290-3394-503 outer rear bulkhead duct assembly on the aft end of the 290-3417-503 duct. Put the 290-3398-507 inner rear bulkhead fitting on the 290-3416-501 duct. Make sure the attach holes of the two fittings align. Refer to Figure 1 (sheet 4).

(7) Make sure the inner and outer ducts are properly positioned on both sides of the rear bulkhead fittings.

(8) Apply jointing compound (CoMat 04-005) to the bolts and the mating surface of the inner rear bulkhead assembly and the aft bulkhead.

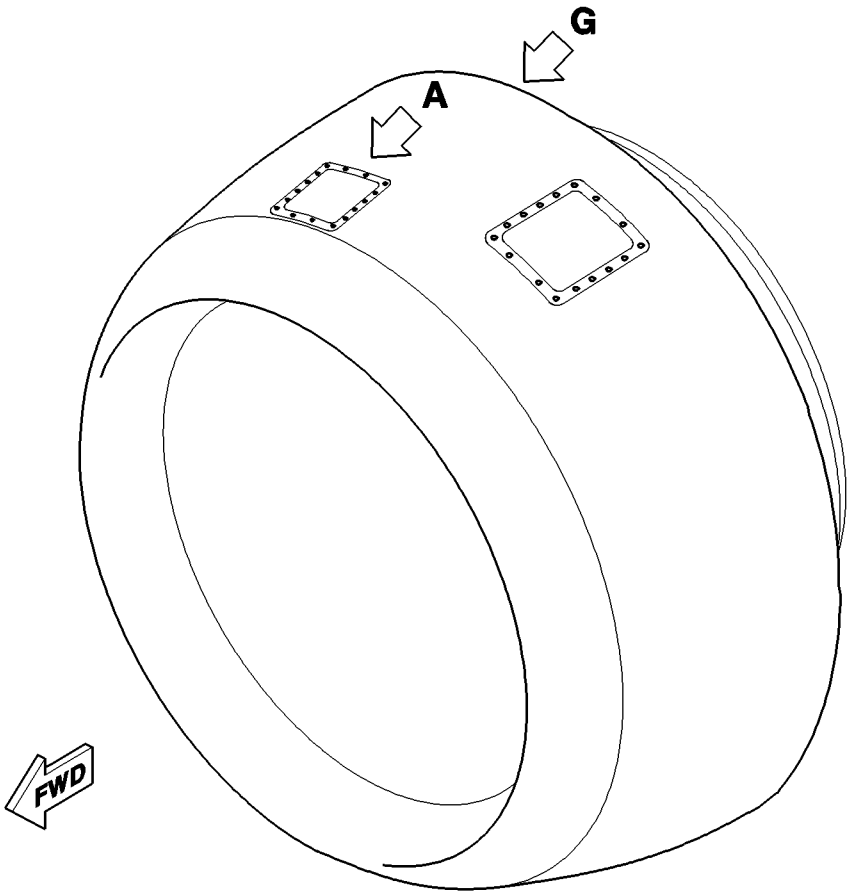
(9) Attach the outer rear bulkhead assembly and inner rear bulkhead asembly to the aft bulkhead with fifteen NAS6703U8 bolts and AN960C10L washers. Torque the bolts to 40 in-lbs (4,52 Nm). Refer to Figure 1 (sheet 4).

(10) Tighten the P29C43 V-clamp at the forward bulkhead. Torque the set screw to 35-40 in-lbs (3,95-4,52 Nm). Refer to Figure 1 (sheet 2).

(11) Make sure all unwanted materials and tools are removed from inside the nose cowl. If necessary, the thermal anti-ice outlet panel and grille can be removed to get access to unwanted material or tools which have dropped into the bottom of the nose cowl.

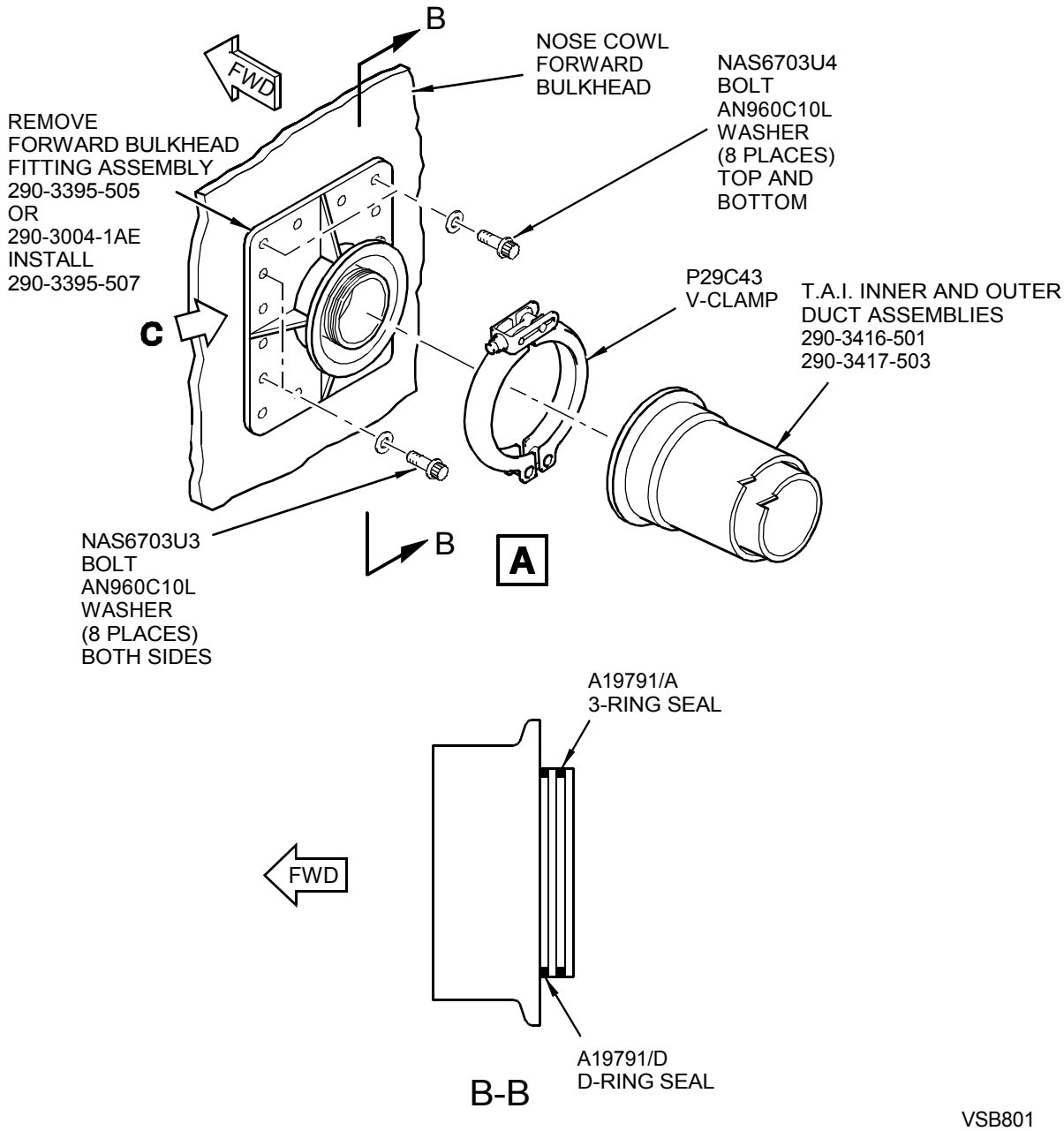
H. Recording Instructions

(1) A record of accomplishment is required. Write in the applicable records and metal stamp, electroetch, or vibroetch on the nose cowl data plate that Service Bulletin V2500-NAC-71-0282 has been done. Refer to the Standard Practices/Processes Manual (SPP-V2500-1IA), Chapter 70-09-00.

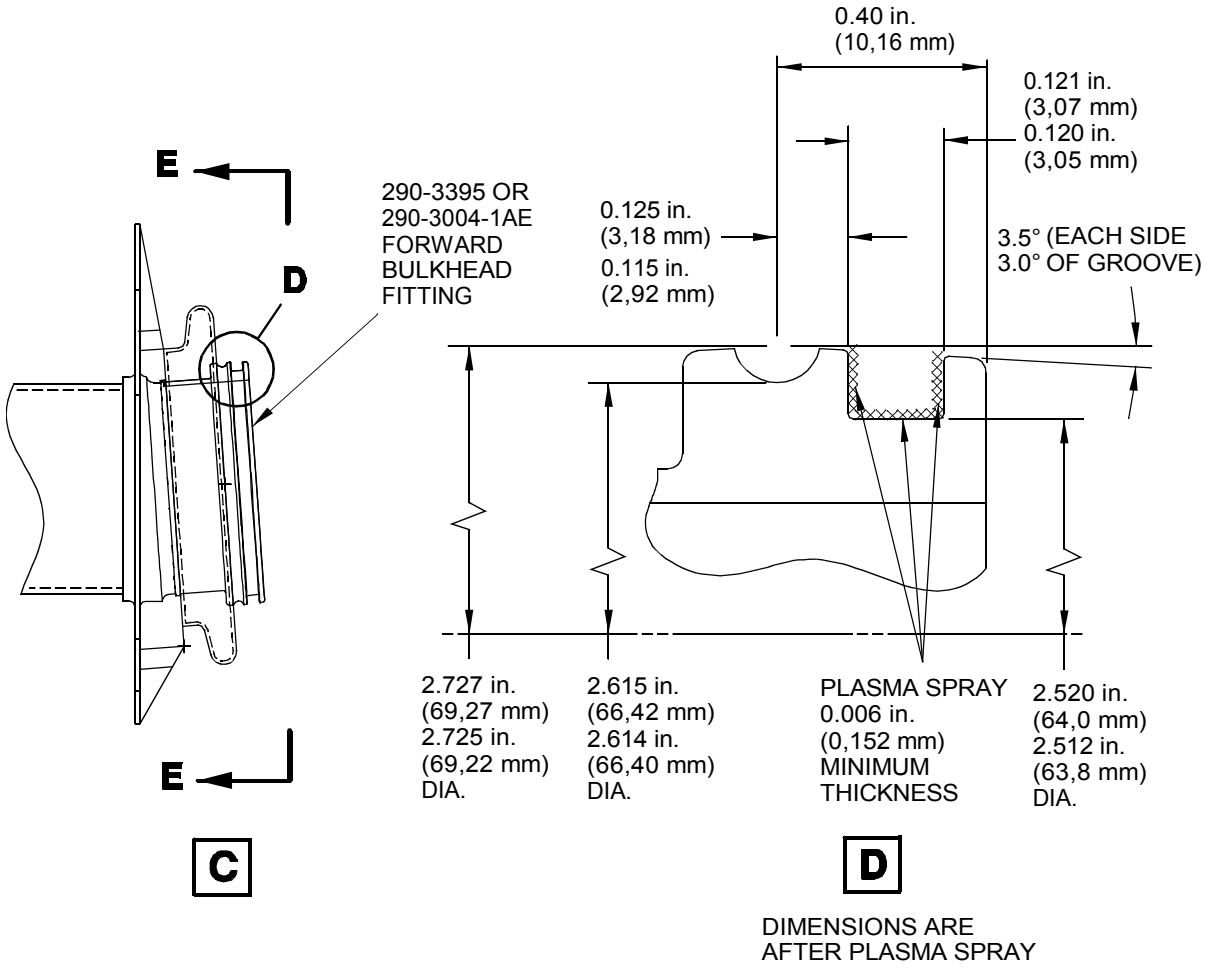


VSB800

Nose Cowl T.A.I. Installation Modification
Figure 1 (sheet 1)

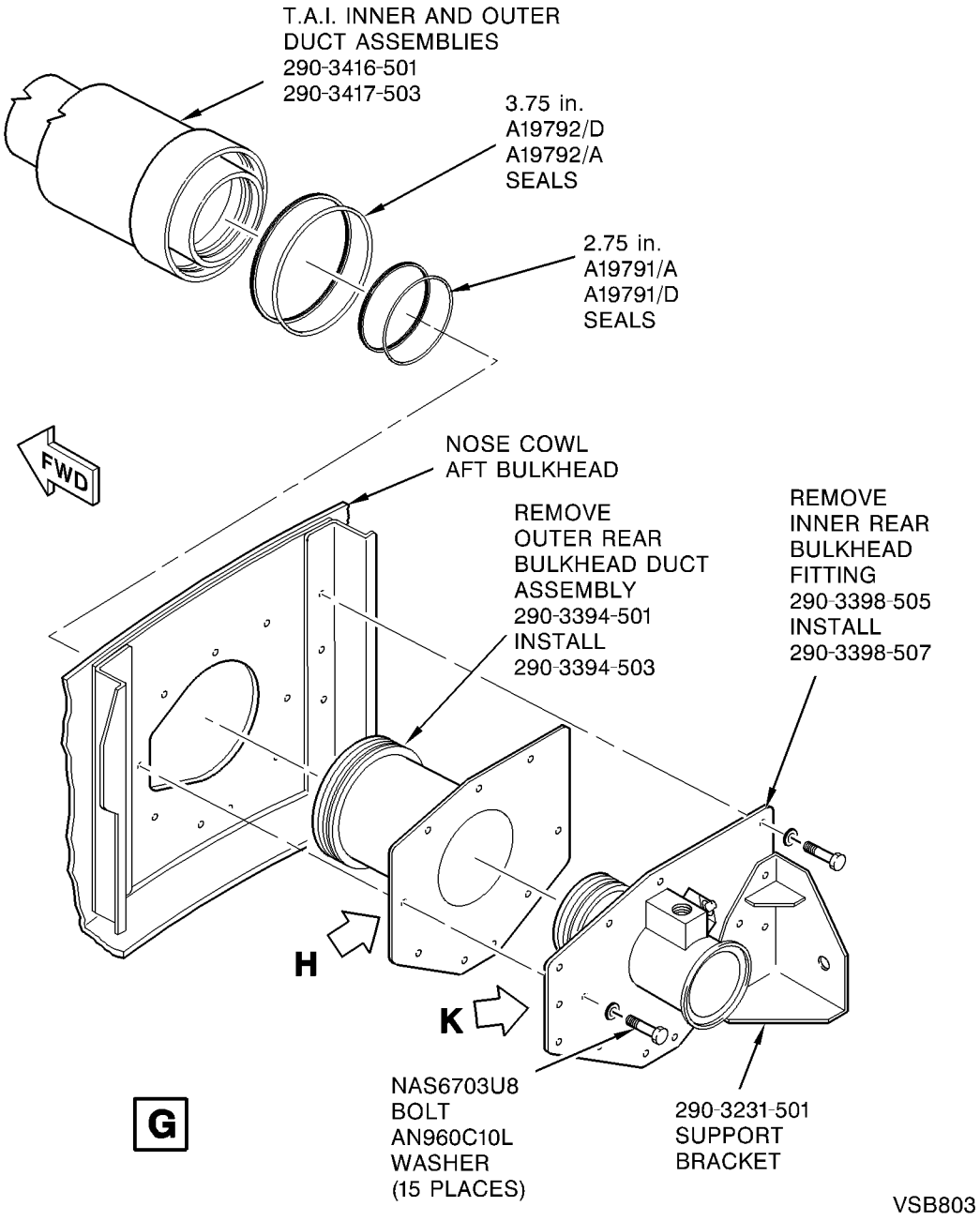


Nose Cowl T.A.I. Installation Modification
Figure 1 (sheet 2)

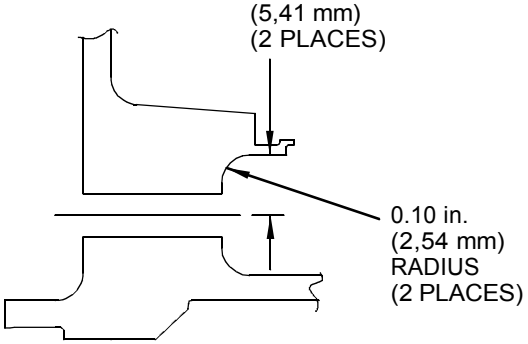


VSB802

Nose Cowl T.A.I. Installation Modification
Figure 1 (sheet 3)

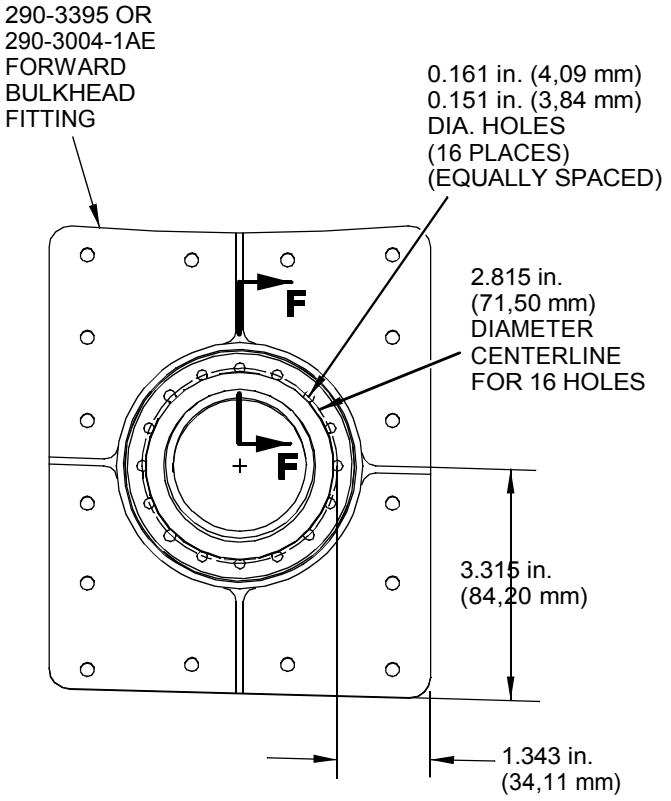


Nose Cowl T.A.I. Installation Modification
Figure 1 (sheet 4)



F–F

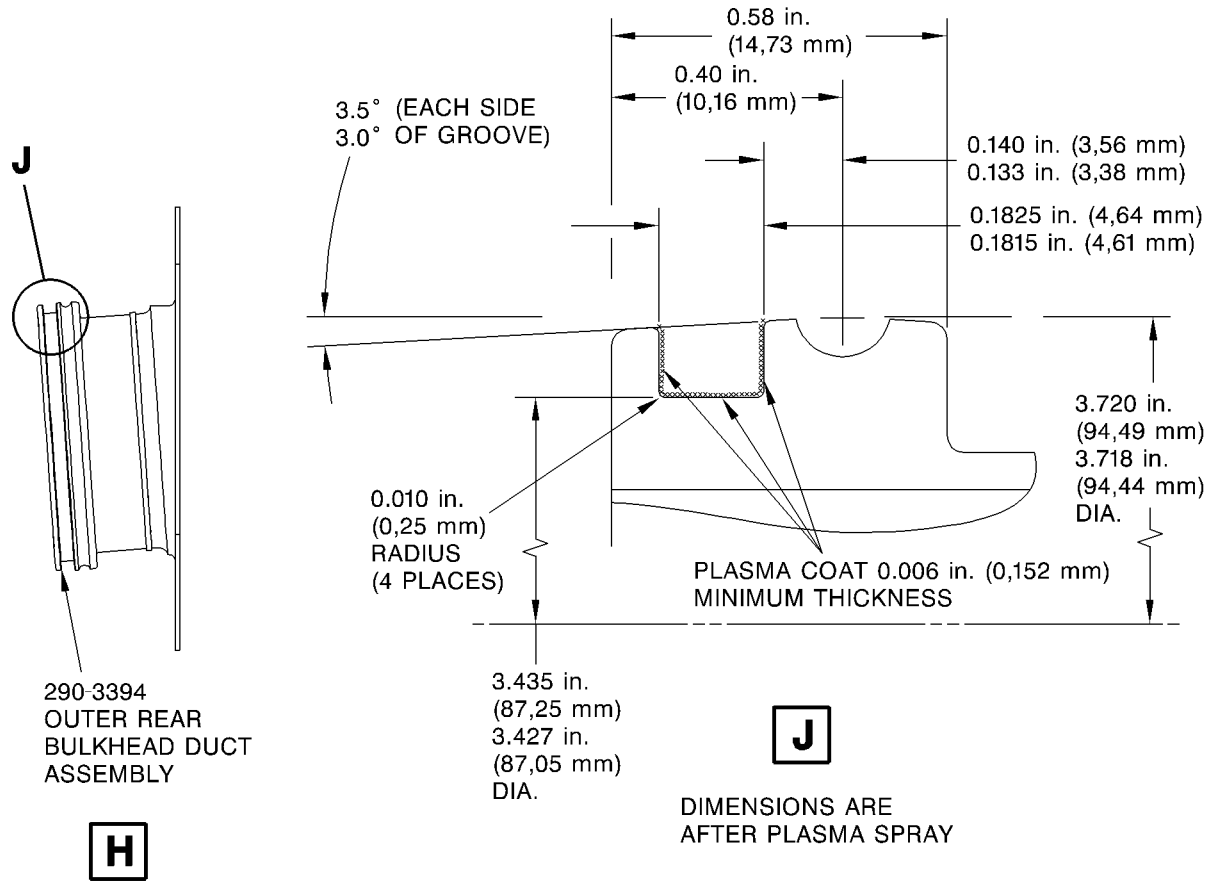
TYPICAL FOR HOLE POSITION
IN GROOVE



E–E

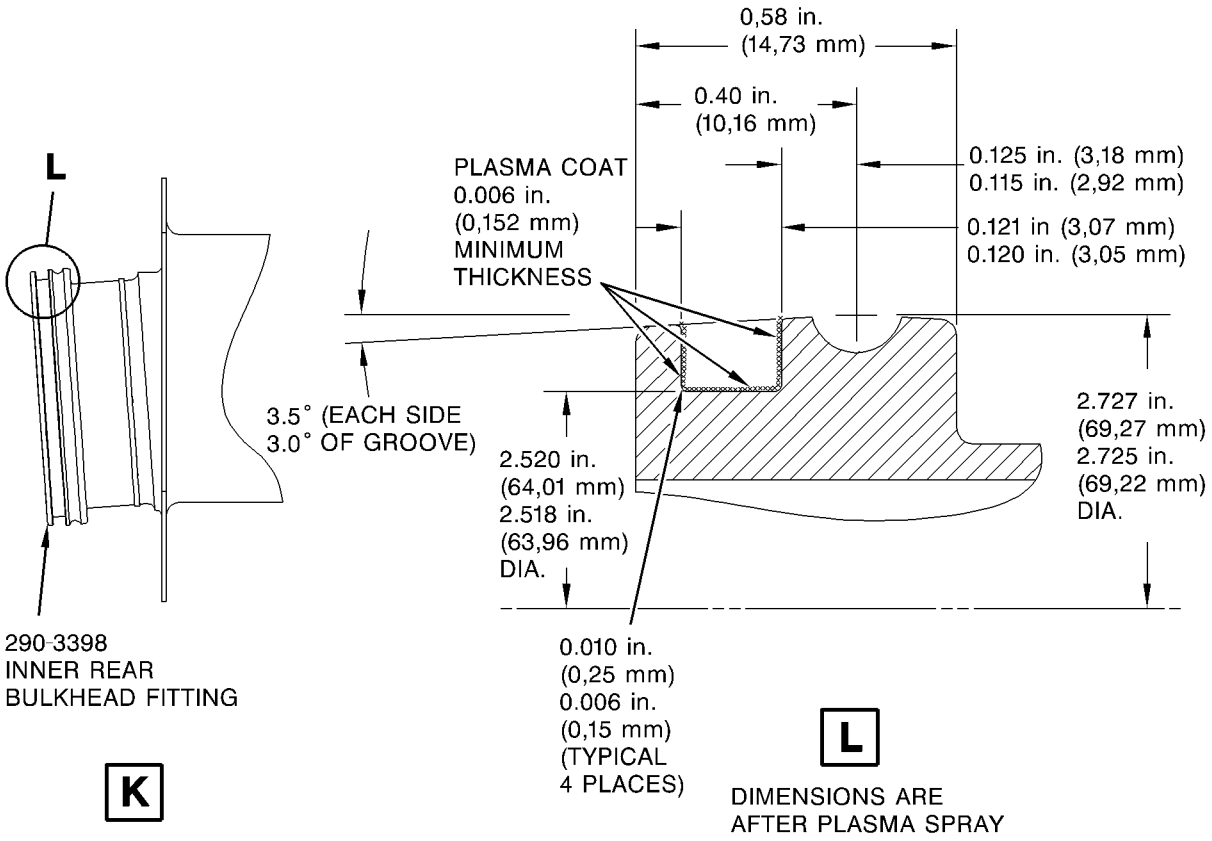
VSB804

Nose Cowl T.A.I. Installation Modification
Figure 1 (sheet 5)



VSB805

Nose Cowl T.A.I. Installation Modification
Figure 1 (sheet 6)



VSB806

Nose Cowl T.A.I. Installation Modification
Figure 1 (sheet 7)