



SERVICE BULLETIN

DATE: 27 DECEMBER 2006
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THRUSTER EXTENSION AND VORTEX GENERATOR INSTALLATION

* Supersedes Service Bulletin SB900-099 dated 09 May 2006. Revised to change time of compliance and add a note for the installation of new thruster extension fairings. Aircraft that are in compliance with Service Bulletin SB900-099 meet the intent of this revision, please complete and return compliance form.

1. PLANNING INFORMATION

A. Aircraft Affected:

All MD900 helicopters, serial number 900-0008 thru 900-0116.
Serial numbers 900-0117 and subsequent will have the Thruster Extension and Vortex Generators installed prior to delivery.

B. Assembly/Components Affected By This Notice:

90005420100-103, -105 Thruster Buildup Installation, 90001300205-109 Tailboom Buildup Assembly, 90007610300-105 General Cowling and Fairing Installation, and 900F3441025-101 NOTAR® Fan Felt Seal.

C. Reason:

To correct a discrepancy between the helicopter capability and the Rotorcraft Flight Manual (RFM) controllability envelope (Ref. RFM Figure 2-2) by improving the low speed controllability characteristics of the anti-torque control system.

Failure to comply with the requirements of part 1 and part 2 of this Bulletin may result in reduced anti-torque control during certain combinations of high gross weight, density altitude, and wind critical conditions. Also, the maximum gross weight of the helicopter will be lowered if this Service Bulletin is not complied with.

D. Description:

Procedures in this Bulletin require owners and operators to adjust directional control system rigging, install the Thruster Extension Kit (which includes vortex generators), and verify that the 900F3441025-103 NOTAR® Fan Felt Seal is installed.

Part 1 requires rigging adjustment of the directional control (fan and thruster) system.

Part 2 requires installation of the Thruster Extension Kit and Fan Felt Seal part number verification. The Thruster Extension Kit requires installation of vortex generators on the tailboom, installation of the thruster extension and new fairings, installation of a new configuration tailboom bumper, directional control rod replacement, and adjust rigging of anti-torque fan and directional control thruster.

E. Time of Compliance:

Perform the requirements of this Bulletin according to the schedule indicated:

Part 1 Adjust directional control system rigging no later than 09 July 2006.

Part 2 Install Thruster Extension Kit and verify Fan Felt Seal part number no later than 28 February 2007.

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F. FAA Approval:

The technical design aspects of this Bulletin are FAA Approved.

G. Manpower:

Part 1 of this Bulletin requires approximately 8 man-hours to complete.

Part 2 of this Bulletin requires approximately 32 man-hours to complete if the Fan Felt Seal requires replacement, 24 man-hours for the Thruster Extension Kit only.

H. Interchangeability:

None

I. Material/Part Availability:

Contact the MDHI Warranty and Repair Department.

| REPLACEMENT PARTS/SUPPLIES | | | |
|----------------------------|-----------------|------|--------|
| Nomenclature | Part No. | Qty. | Source |
| Thruster Extension Kit | SBK-009 | 1 | MDHI |
| Felt Seal, NOTAR® Fan | 900F3441025-103 | 1 | MDHI |

NOTE: The following materials must be ordered in addition to the SBK009 Thruster Extension Kit to comply with part 2 of this Bulletin.

| MATERIAL | | | |
|--|---|----------------------------------|--|
| Nomenclature | Part No. | Qty. | Source |
| Sealing Compound | MDM16-1097 T1 CB1/2 MIL-S-8802 T1 CB1/2 890 | 2 oz (60 cc) | PRC Desoto International, Inc. 5454 San Fernando Rd. Glendale, CA 91203 (818) 240-2060 |
| Adhesive, Acrylic (Note 1) or Adhesive, Epoxy (Note 2) | Loctite® 330™ MDM16-1068 C12 EA9321 | 250ml kit 2 oz (60 cc) | Loctite Industrial Products 800-562-8483 www.loctite.com/int_henkel/loctite/entry.cfm Dexter Adhesive & Coating Systems, Hysol & Frekote Products One Dexter Dr. Seabrook, NH 03874-4018 (800) 254-2636 |
| Resin, Epoxy | MDM16-1115 T3 Araldite 501 | AR | Fiber-Resin Corporation 20701 Nordhoff St. Chatsworth, CA 91311 (800) 624-9487 |

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| MATERIAL (Cont.) | | | |
|-------------------------------|-------------------------------|-------------------|---|
| Nomenclature | Part No. | Qty. | Source |
| Solvent Cleaner | Desoclean 45 or equivalent | 16 oz (473 cc) | PRC Desoto International, Inc. 5454 San Fernando Rd. Glendale, CA 91203 (818) 240-2060 |
| Sandpaper, Non Aluminum Oxide | 180 Grit | AR | Commercial |

NOTES:

- (1) Preferred adhesive. Has a fixture time of 30 seconds to 5 minutes, full cure in 24 hours.
- (2) Has a fixture time of 24 hours, full cure in 5 to 7 days.

J. Warranty Policy:

The MDHI Warranty and Repair Dept. will provide the Thruster Extension Kit SBK-009 and Fan Felt Seal at no cost to the operator. MDHI will also provide, to authorized Service Centers, up to 32 hours of labor warranty (spares credit) for installation of the Thruster Extension Kit and Fan Felt Seal.

NOTE:

- Schedule parts from MDHI no later than 30 June 2006.
- Install the Thruster Extension Kit and Fan Felt Seal no later than 28 February 2007.
- Submit to MDHI Warranty and Repair Department, the Service and Operations Report (SOR) form with parts removed, the "Bulletin Compliance Recording Form" completed and signed with the part invoice attached, within 30 days after accomplishing part 2 of this Service Bulletin.

K. Disposition of Parts Removed:

Fax a copy of the completed Service and Operations Report (SOR) form to MDHI Warranty Repair Dept. DATAFAX: (480) 346-6813.

Ship removed parts; old control rod and tailboom bumper (cut in half), along with the (original) completed Service and Operations Report (SOR) form to MDHI Warranty Repair Dept.

L. Tooling:

| TOOLS AND EQUIPMENT | |
|--|---|
| Nomenclature | Source |
| Vortex Generator Locating Template, PN 90005310000-AT1 | MDHI (Included in Thruster Extension Kit, PN SBK-009) |

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M. Weight and Balance:

Thruster Extension Kit installation moves the thruster assembly aft 21 in. This results in the weight and balance change shown in the table below.

Record the following weight and balance data in the helicopter Log Book.

| Add/Subtract | Weight (lbs.) | Long Arm (inches) | Lat Arm (inches) | Long Moment (inch-pounds) | Lat Moment (inch-pounds) |
|--------------|---------------|-------------------|------------------|---------------------------|--------------------------|
| Add | 13.83 | 475.56 | 0 | 6577 | 0 |

N. Electrical Load Data:

N/A

O. Other Publications Affected:

CSP-900RMM-2, Rotorcraft Maintenance Manual, Reissue 1, Revision 27, or later revision incorporated.

CSP-900IPL-4, Illustrated Parts List Reissue 2, Revision 10, or later revision incorporated.

P. Referenced Publications:

CSP-900RMM-2, Rotorcraft Maintenance Manual, Reissue 1, Revision 27, or later revision incorporated.

CSP-900SPM, Standard Practice Manual, Original Issue, Revision 14, or later revision incorporated.

Q. Compliance Record:

Make sure that compliance with Parts 1 and 2 of this Service Bulletin are recorded in the Compliance Record section of the helicopter Log Book and on the Bulletin Compliance Recording Form at time of completion of each Part.

R. Points of Contact:

For further assistance, contact the Field Service Department at MDHI, Mesa, Arizona. Telephone 1-800-388-3378 or (480) 346-6387. DATAFAX: (480) 346-6813.

2. ACCOMPLISHMENT INSTRUCTIONS

A. Part 1. Adjust Rigging:

- (1). Verify that revision 27 or later is incorporated into CSP-900RMM-2, Rotorcraft Maintenance Manual.
- (2). Adjust rigging of anti-torque fan and directional control thruster (Ref. CSP-900RMM-2, Section 67-20-00, Anti-Torque/Directional Control System Rigging).
- (3). Record compliance to Part 1 of this Bulletin in the Rotorcraft Logbook.
- (4). Complete Part 1 of the Bulletin Compliance and Recording Form (attached) and FAX to MDHI Field Service Dept.

B. Part 2. Install Thruster Extension Kit and Verify Fan Felt Seal Part Number:

NOTE:

- Step 1 of this Part applies to MD900 helicopters serial numbers 900-00008 thru 900-00047.
- Aircraft serial numbers 900-000008, -00010, -00011, -00015, -00022, 00030, -00031, -00040, -00041, and -00047 already comply with step 1 of this Part.

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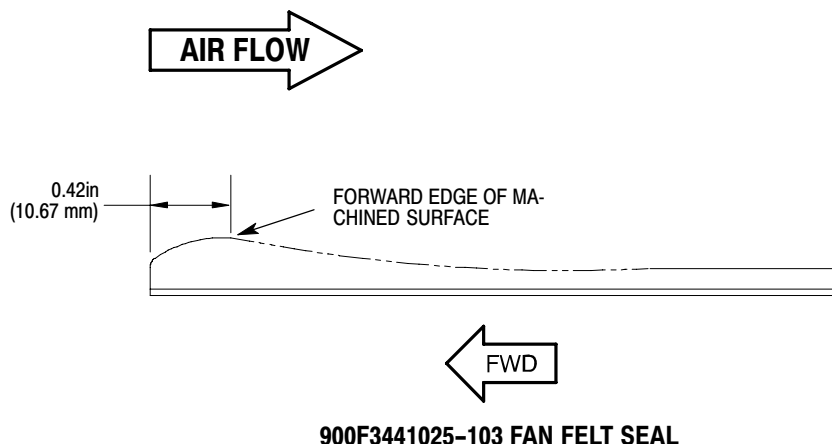
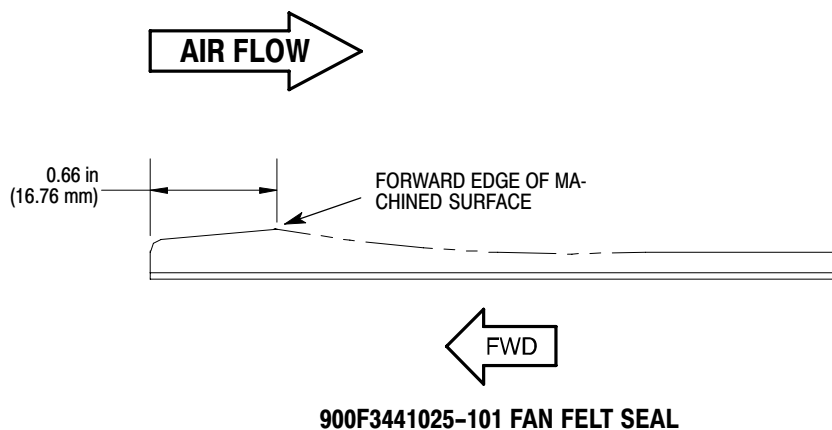
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- (1). Verify that P/N 900F3441025-103 NOTAR® Fan Liner (Felt Metal Seal) is installed.
(Ref. Figure 1)
 - (a). If necessary, replace with a P/N 900F3441025-103 Fan Liner (Felt Metal Seal) (Ref. CSP-900RMM-2, Section 64-30-00).



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Figure 1. Fan Felt Seal Identification

- (2). Verify that revision 27 or later is incorporated into CSP-900RMM-2, Rotorcraft Maintenance Manual.
- (3). Remove tailboom covers and fairings, SL1, SR1, S2, S4 (Ref. CSP-900RMM-2, Section 06-00-00 and 53-40-00).
- (4). Remove Thruster Assembly (Ref. CSP-900RMM-2, Section 67-20-00).
- (5). Remove Tailboom Bumper (Ref. CSP-900RMM-2, Section 53-40-00).
- (6). Remove Rotating Cone Control Rod Assembly (Ref. CSP-900RMM-2, Section 67-20-00).
- (7). Install vortex generators on tailboom using vortex generator locating template, PN 90005310000-AT1 (Ref. CSP-900RMM-2, Section 53-40-00, Vortex Generator Installation). (Instructions for template use provided with template.)

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(8). Modify thruster assembly.

(Ref. Figure 2)

- (a). Trim thruster control rod pass thru hole per View D-D and View E-E and seal any exposed fibers with Epoxy Resin, refer to resin manufacturer's instructions.
- (b). Verify that installed thruster control sector assembly is PN 900C2010392-109. If the PN is not correct, contact MDHI Field Service Department.
- (c). Using permanent ink, reidentify modified thruster assembly, at location of existing part number, as PN 90005310000-101.

(9). Install new Tailboom Bumper (thruster extension) (Ref. CSP-900RMM-2, Section 53-40-00).

(10). Install new Rotating Cone Control Rod Assembly (thruster extension) (Ref. CSP-900RMM-2, Section 67-20-00).

(11). Install Thruster Extension (Ref. CSP-900RMM-2, Section 53-40-00).

(12). Install Thruster Assembly (Ref. CSP-900RMM-2, Section 67-20-00).

■ **NOTE:** Make screw holes in new fairings SL8 and SR8 to match attach holes in helicopter.

(13). Install tailboom fairings, SL1, SR1, S2, S4, SL8, and SR8 (Ref. CSP-900RMM-2, Section 06-00-00 and 53-40-00).

(14). Install vortex generators on thruster fairings and thruster extension fairings using vortex generator locating template, PN 90005310000-AT1 (Ref. CSP-900RMM-2, Section 53-40-00, Vortex Generator Installation). (Instructions for template use provided with tool.)

(15). Adjust rigging of anti-torque fan and directional control thruster (Ref. CSP-900RMM-2, Section 67-20-00, Anti-Torque/Directional Control System Rigging).

(16). Remove rotating cone assembly and verify there is clearance (no contact) between sector assembly and rotating cone control rod assembly through full directional control travel. Install rotating cone assembly.

(17). Perform helicopter weight and balance calculation and record in helicopter Basic Weight and Balance Record.

(18). Record compliance to Part 2 of this Bulletin in the Rotorcraft Logbook.

(19). Complete Part 2 of the Bulletin Compliance and Recording Form (attached) and FAX to MDHI Field Service Dept.

NOTE: If owners and operators want to take advantage of the increased gross weight capability of this configuration, they must comply with the latest revision of SB900-102, Increased Gross Weight Capability 6251-6500 lbs With LH Middle Aft Truss Assembly Replacement.

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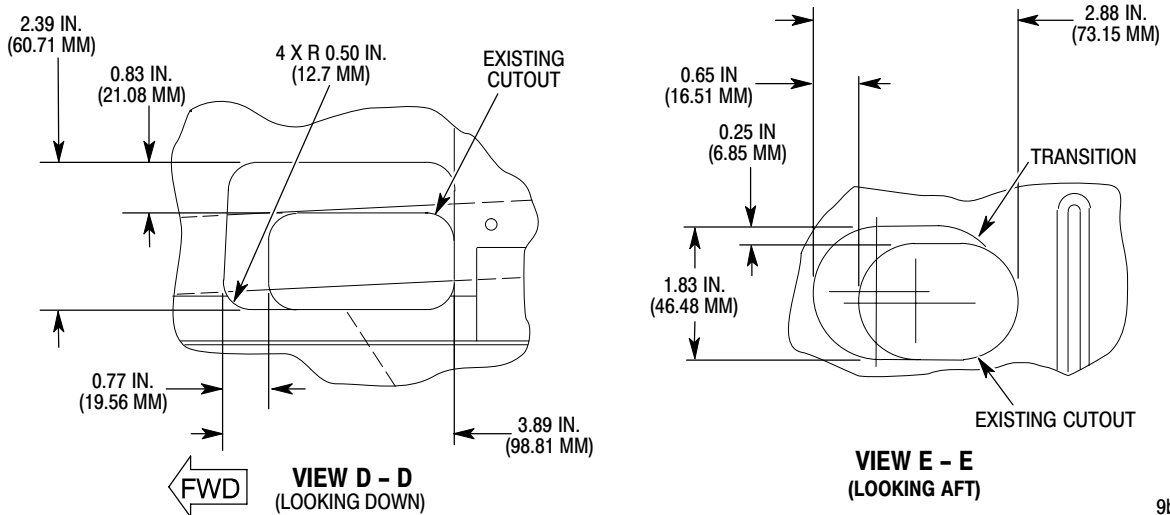
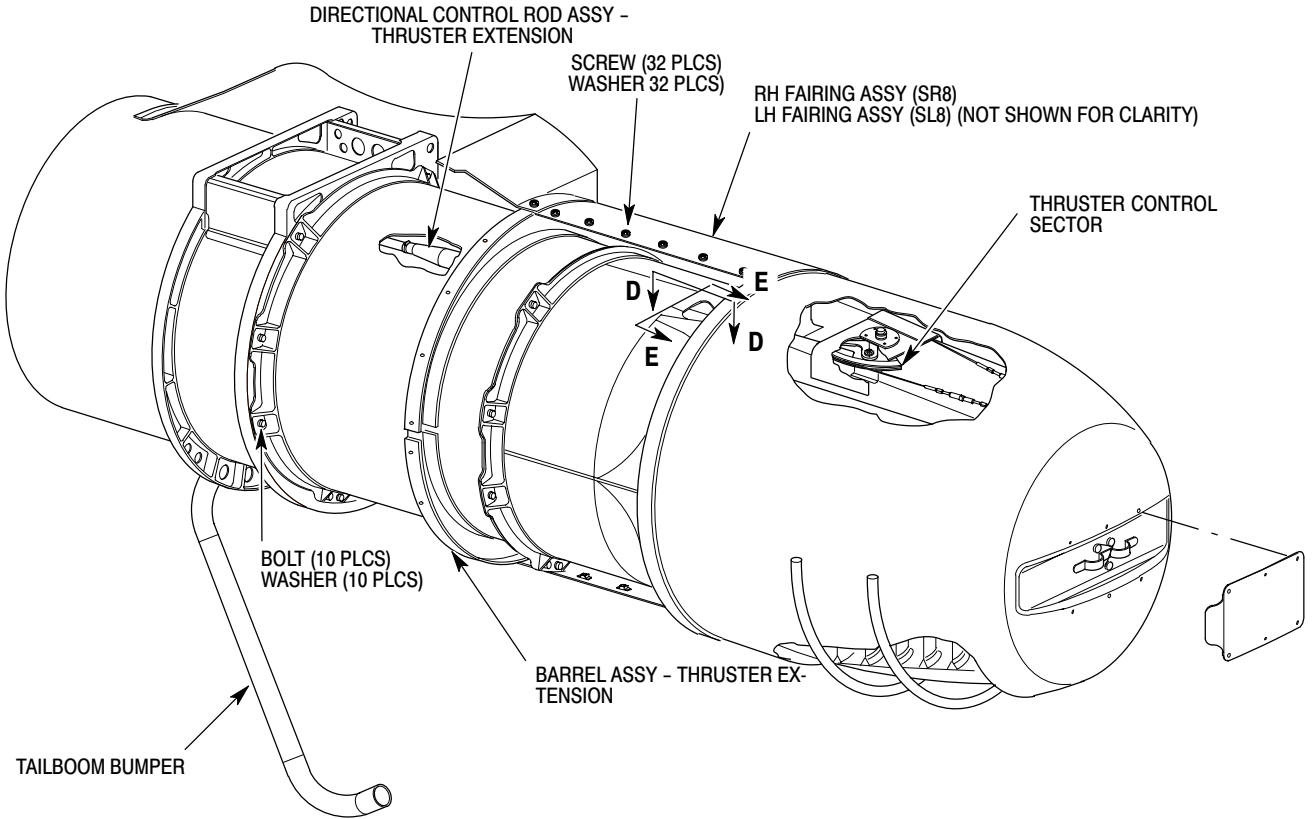
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Figure 2. Thruster Extension Modification

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Bulletin Compliance Recording Form

Service Bulletin SB900-099R1, Thruster Extension and Vortex Generator Installation

FAX this form to MDHI (480) 346-6813 or
Email to ServiceEngineering@mdhelicopters.com

MD Helicopters, Inc.
Field Service Department
4555 E. McDowell Road
Mesa, AZ 85215-9734

800-388-3378 phone (U.S. and Canada)
480-346-6387 phone (International)
480-346-6813 Fax

Dear Sir:

This is to inform you that the Service Bulletin has been complied with as indicated below:

Customer/Operator Name: _____

Aircraft Serial No: _____

Address: _____

Phone: _____

PART 1 Completed

Helicopter Total Time: _____ Date: _____

Location: _____

Signature of Person Confirming Compliance: _____

PART 2 Completed

Helicopter Total Time: _____ Date: _____

Location: _____

Signature of Person Confirming Compliance: _____

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