SERVICE BULLETIN

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* Supersedes Service Bulletin SB900-092R1, dated 30 June 2003. Revised to change nut part number and closing force range. Aircraft that are in compliance with SB900-092R1 meet the intent of this revision.

MAIN ROTOR BLADE RETENTION BOLT INSPECTION

1. PLANNING INFORMATION:

A. Aircraft Affected:

MD900 helicopters, serial number 900-00008 thru 900-00114.

B. Assembly/Components Affected By This Bulletin:

Blade Retention Bolt (P/N 900R3100001-103).

C. Reason:

There have been reports of one broken blade retention bolt on two separate helicopters.

Failure to comply with instructions in this bulletin may result in increased vibration and possible subsequent loss of control.

D. Description:

Procedures in this Bulletin provide owners and operators with information pertaining to inspection of the blade retention bolts.

E. Time of Compliance:

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

Part 1;

- Preflight Check- Perform prior to each flight, for affected blade retention bolts with over 400 flight hours.

Part 2;

- Initial Inspection - Perform prior to next flight.
- Recurring Inspection - Perform every four (4) to six (6) flight hours, for affected blade retention bolts with over 400 flight hours.

Part 3;

Disassembly and Inspection - Perform according to the indicated schedule;

- Effective 30 June 2003, new bolts are considered compliant with the intent of this bulletin and disassembly and inspection are not required.
- For affected blade retention bolts with over 400 flight hours, perform inspection (Part 3) no later than 30 July 2003.
- For affected blade retention bolts with less than 400 flight hours, perform inspection (Part 3) prior to reaching 400 flight hours or before 30 June 2004, whichever comes first.

Compliance with Part 3 of this Bulletin constitutes terminating action of the inspection requirements of Part 1 and Part 2 of this bulletin. Upon completion of Part 3, ensure that the Force has stabilized by performing Main Rotor Blade Torque Verification (Ref. CSP-900RMM-2, Section 05-20-10, Special Inspection - After Component Installation).

F. FAA Approval:

The technical design aspects of this Bulletin are FAA Approved.

G. Manpower:

Approximately 1.0 man-hour is required to accomplish Part 2 of this Bulletin.
Approximately 10.0 man-hours are required to accomplish Part 3 of this Bulletin.

H. Interchangeability:

None

I. Material/Part Availability:

Contact MDHI Parts Sales Dept. or Warranty and Repair Dept., as applicable.

REPLACEMENT PARTS/SUPPLIES			
Nomenclature	**Part No.**	**Qty.**	**Source**
Bolt, Blade Retention	900R3100001–103	AR	MDHI
Nut	18ADP310	AR	MDHI
O–Ring	NAS617–10	AR	Commercial
Lubricant, Solid Film (MDM 4–1078, T1	Molykote 3402C or Lubribond 220 or Perma–Silk G	AR	Dow Corning Corporation P.O. Box 0994 South Saginaw Road Midland, MI 48686–0094 (800) 634–9660 E/M Corporation 100–T Cooper Circle Peachtree City, GA 30269 (800) 428–7802 770–261–4800
Alcohol, Isopropyl		AR	Commercial

J. Warranty Policy:

Standard warranty policy applies.

K. Tooling:

N/A

L. Weight and Balance:

N/A

M. Electrical Load Data:

N/A

N. Other Publications Affected:

N/A

2. ACCOMPLISHMENT INSTRUCTIONS:

A. Part 1: Blade Retention Bolt Preflight Check

(Ref. Figure 1)

(1). Check that position of installed blade retention bolts have not shifted upward.

(2). Visually inspect installed blade retention bolts for gap between thrust washer and retainer.

(3). If any blade retention bolt has shifted position upward or there is no gap between thrust washer and retainer, accomplish Part 2 of this Bulletin prior to flight.

B. Part 2: Blade Retention Bolt Inspection

CAUTION Do not close blade retention bolt handle when bolt is not installed in blade/hub assembly as damage to expandable bushings can occur.

(1). To relieve preload of flexbeam, release collective friction.

NOTE: This lets the collective stick move up to release the tension on the blade attach bolts. The outboard end of pitchcase should move to a neutral pitch angle.

(a). Apply electrical power using ground power unit (T2002) (Ref. CSP-900RMM-3).

(b). Release collective friction by depressing the collective friction release switch and raise pilot collective stick sufficient to unload collective controls. Approximately 15 to 30 percent indicated on the IIDS.

NOTE: Perform the following procedure for all blade retention bolts, one at a time.

WARNING **Support the main rotor blade during removal or installation. Have one person on a maintenance stand.**

(2). Position main rotor blade so that it is approximately above level.

(3). Disengage spring clip and raise cam handle.

(4). Gently tap on bolt head to loosen segments and ensure that bolt is free in hole.

(5). Remove blade retention bolt and O-ring on initial inspection only (not required on recurring inspection).

(a). Inspect removed blade retention bolt.

1). Examine blade retention bolt for freedom of movement of segments.

2). Visually inspect blade retention bolt segments for cracks.

3). If segments do not move freely or cracks are noted, replace blade retention bolt.

WARNING **Do not apply lubricant or preservative on blade retention bolt.**

NOTE: Install the bolt with the cam handle position in alignment with the slot of the retainer.

4). Install blade retention bolt, with O-ring under thrust washer, down through retainer, pitchcase, and blade.

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NOTE:

- Make sure the bolt lock ring is fully outside of pitchcase bottom surface.
- Force F is when the spring clip has pushed across the bolt end, just before full engagement with the hex nut.

(6). Close cam lock handle and verify Force F required is within proper tolerance.

(a). Force required to rotate handle, prior to bushing assembly expanding, shall not exceed **5 lbs (2.27 kg**). If force limit is exceeded, replace blade retention bolt.

(b). Adjust closing Force F by tightening or loosening hex nut until Force F necessary to close cam handle is **65 to 115 lbs. (29.48 to 52.16 kg.)** plus handle rotating force.

NOTE: If necessary, you can make minor adjustments to the hex nut, in the tightening direction only, to align the spring clip without a recheck of Force F.

(7). Complete installation of bolt by snapping spring clip onto hex nut.

NOTE: Make sure that:

- Lock ring expanded outside the pitchcase bottom surface.
- Spring clip hex hole engaged the hex nut.
- Cam handle is in the slot of the retainer.

C. Part 3: Blade Retention Bolt Disassembly and Inspection

WARNING **Support the main rotor blade during removal or installation. Have one person on a maintenance stand.**

CAUTION Do not close blade retention bolt handle when bolt is not installed in blade/hub assembly as damage to expandable bushings can occur.

(1). Remove main rotor blades (Ref. CSP-900RMM-2, Section 62-10-00, Main Rotor Blade Removal).

(2). Record location, serial number, number of cycles, and time in service for each blade retention bolt on the Bulletin Response Form.

(3). Record condition of assembled blade retention bolt (i.e. bushings loose, frozen, etc.) on the Bulletin Response Form.

(Ref. Figure 2)

(4). Disassemble each blade retention bolt.

CAUTION Keep components of individual blade retention bolts separated. Do not mix components. Components are life limited and may not be interchanged.

(a). Carefully remove weld spot in lead thread. Use extreme caution to avoid damage to threads.

(b). Chase threads using an appropriate tool. Thread on the core bolt is 0.5000-20 UNJF-3A per MIL-S-8879.

(c). Remove nut from bolt and retain for reuse.

(d). Remove expanding elements, taking great care to keep them in order and maintain installation orientation.

(5). Inspect each retention bolt.

(a). Clean bolt with isopropyl alcohol. Do not remove dry-film lubricant.

(b). Using 5x magnification, inspect core bolt for damage. None allowed, except for minor scratches or score marks that do not penetrate machined surface finish.

(c). Visually inspect nut and core bolt threads. No damage allowed that interferes with normal assembly.

(d). Visually inspect expanding elements and spacers. No cracks allowed.

(e). If all examinations are acceptable, as required touch-up dry-film lubricant (aerosol) on core bolt to a thickness of 0.001 inch (0.0254mm) maximum. Cure per manufacturers instructions.

(6). Reassemble acceptable blade retention bolts.

(a). Reassemble expanding elements onto core bolt, taking great care to ensure that they are in the same location and orientation as when removed.

(b). Reinstall nut. Measure drag/locking torque (should be **14 - 100 in-lb (1.6 - 11.2 N•m.)**). If outside locking torque limits, replace nut.

NOTE: Weld spot in lead thread is not required to be applied after reassembly in accordance with this procedure.

WARNING **Do not apply lubricant or preservative on blade retention bolt, except as specified in step 5.(e) above.**

(7). Install main rotor blades with serviceable blade retention bolts (Ref. CSP-900RMM-2, Section 62-10-00, Main Rotor Blade Installation).

(8). Report inspection results to MDHI on the Bulletin Response Form. Describe clearly any discrepancies observed.

(9). Perform Main Rotor Blade Torque Verification (Ref. CSP-900RMM-2, Section 05-20-10, Special Inspection - After Component Installation).

3. DISPOSITION OF PARTS REMOVED:

Return to MDHI Warranty and Repair Dept.

4. COMPLIANCE RECORD:

Record compliance to this Service Bulletin in the Compliance Record section of the helicopter Log Book and complete and return the Bulletin Response Form.

5. POINTS OF CONTACT:

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

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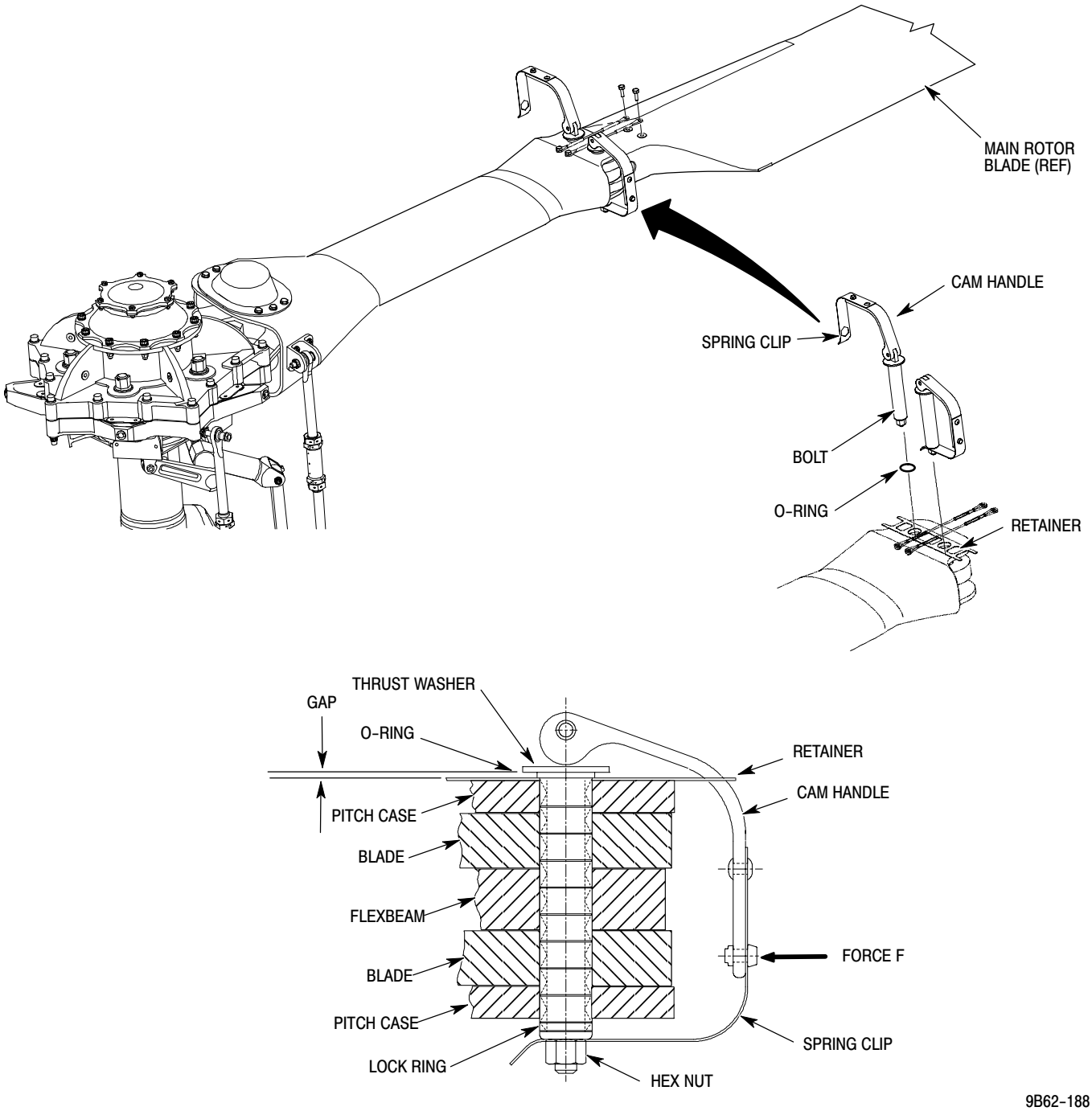

Figure 1. Blade Retention Bolt

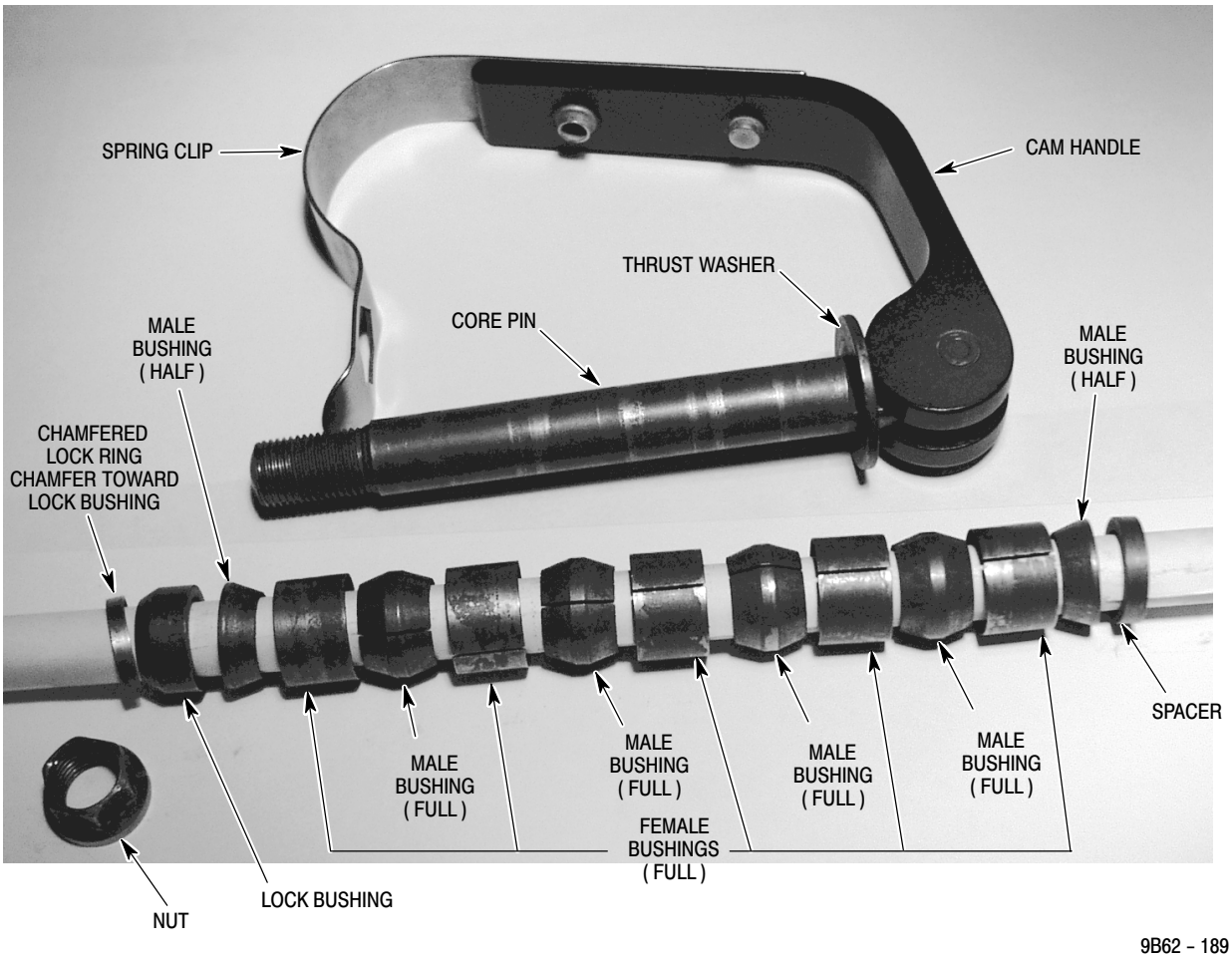

Figure 2. Disassembled Blade Retention Bolt Inspection

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MAIN ROTOR BLADE RETENTION BOLT INSPECTION

Bulletin Response Form: Please fill in the following information, and return to MDHI Field Service Department. This form may be faxed to MDHI Field Service Department at (480) 346-6813.

Operator or Company Name:

Name of Contact Person:

Address:

Telephone:

Fax:

Aircraft Ser. No.:

Aircraft Registration Number:

Date:

Date of Compliance for Part 3:

Blade	Position	Bolt Serial Number	Bolt Hours	Bolt Cycles	Condition
1	Lead				
	Lag				
2	Lead				
	Lag				
3	Lead				
	Lag				
4	Lead				
	Lag				
5	Lead				
	Lag				