URGENT

***TB 1–1520–237–20–230**

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

SAFETY OF FLIGHT TECHNICAL, RCS CSGLD–1–1860(R1), ALL H–60 AIRCRAFT, INSPECTION OF MAIN ROTOR SPINDLE

Headquarters, Department of the Army, Washington, D. C.
19 March 2001

1. Priority Classification.

NOTE

IAW AR 95–1, paragraph 6–6a, MACOM Commanders may authorize temporary exception from SOF message requirements. Exception may only occur when combat operations or matter of life or death in civil disasters or other emergencies are so urgent that they override the consequences of continued aircraft operation.

a. Aircraft in Use – Upon receipt of this message make the following entry on the DA Form 2408–13–1. Enter a Red Horizontal Dash //–// status symbol with the following statement: "Inspect Main Rotor Spindle IAW TB 1–1520–237–20–230, within the next 100 flight hours, but NLT 7 May 2001" Clear the Red Horizontal Dash //–// entry when the procedures has been completed. The affected aircraft shall be inspected as soon as practicable but NLT 3 July 2001. Commanders who are unable to comply with the requirements of this message within the time frame specified will upgrade the affected aircraft status symbol to a Red //X//.

b. Aircraft in Depot Maintenance. – Depot commanders will not be issue aircraft until they are in compliance with this TB.

c. Aircraft Undergoing Maintenance – Commanders and Facility managers will not issue aircraft until they are in compliance with this TB.

d. Aircraft in Transit –

(1) Surface/Air Shipment – Same as para 1a.

(2) Ferry Status –

(a) Same as paragraph 1a.

(b) Sikorsky Helicopter will inspect DD 250 aircraft prior to those aircraft departing for ferry to final destinations.

* This TB supersedes USAAMCOM Aviation Safety of Flight Message (AMSAM), 051800Z MAR 01 UH–60–01–05.

e. Maintenance Trainers (Category A, and B) – Same as para 1a.

f. Wholesale and Retail Stock – Upon receipt of this message, Depot and Material Activity Commanders will ensure the material condition tags of all items in all condition codes listed in paragraphs 6 are annotated to read: "TB 1–1520–237–20–230 Inspection of Main Rotor Spindle Lugs, Not Complied with".

(1) Wholesale Stock – Tag stock IAW paragraph 1f.

(2) Retail Stock – Upon receipt of this message, Commanders and Facility managers maintaining retail stock at installation level and below shall contact the supported aviation unit to perform the procedures required IAW paragraph 8 and 9 on suspect material. Dispose of discrepant material IAW paragraph 10d. Report compliance with this message IAW paragraph 14d (2).

g. Components/Parts in Work (Depot Level and Others) – Depot and other Maintenance activity Commanders will ensure items listed in paragraph 6 are not issued until they are in compliance with this message.

2.**Task/Inspection Suspense Date.** Complete the paragraph 8 Inspection within the next 100 flight hours but NLT 3 July 2001 and report IAW paragraph 14b.

3.**Reporting Compliance Suspense Date.** Report compliance IAW paragraph 14a NLT 9 March 2001.

4.**Summary of the Problem.**

a. History / Background –

(1) TB 1–1520–237–20–221 was published to inspect all spindles for broken lugs, and to implement a revised 10 hour / 14 day recurring visual inspection of the Spindle Lugs, and the Main Rotor Blade Expandable Pins. Since the SOF was issued, an Ultrasound Non–Destructive Inspection (NDI) technique has been developed to find small cracks in the Spindle Lug in areas that are not normally inspectable without removal of the bushing. In addition, questions arose during the initial investigation concerning the fractured lug whether a non–conforming pin could have been a factor in the process. The investigation into the fracture and crack growth rate of the Spindle Lug continues.

b. For manpower/downtime and funding impacts see paragraph 12.

c. The purpose of this TB is to –

(1) Implement an initial and recurring Ultrasound NDI of the Main Rotor Blade Attachment Lugs.

(2) Conduct a one–time inspection of all Main Rotor Blade Expandable Pins for items not conforming to configuration.

(3) Revise the 10 hour / 14 day inspections for all the Main Rotor Blade Attachment Lugs and the Expandable Pins.

5.**End Items to be inspected.** All H–60 series aircraft.

6.**Assembly Components to be Inspected.**

NOMENCLATURE	PART NUMBER	NSN
Spindle Assembly	ALL PART NUMBERS	ALL NSN NUMBERS
Spindle Liner Assembly	ALL PART NUMBERS	ALL NSN NUMBERS

7.**Parts to be Inspected.** N/A

NOMENCLATURE	PART NUMBER	NSN
Main Rotor Expandable Pin	70103–08107–102	5315–01–329–0707
Main Rotor Expandable Pin	70103–08107–103	NO NSN

8.Inspection Procedures.

WARNING

This NDI inspection requires either a qualified 68DN2 or a NAS 410 level II Ultrasonic NDI Technician

NOTE

A copy of the detailed AVIM Level NDI Instructions is included in each NEC–8102 Inspection Kit (No NSN). The NEC–8102 Inspection Kits are being fielded to the AVIMs and AVCRADS by the Utility Helicopters Project Management Office (PM) and should be available within 30 days of message date. If the kit is not received by 6 April 2001, contact the logistics POC of paragraph 16b. The NDI instructions will also be available for download from the safety area of the UH PMO website at: "http://www.uhpo.redstone.army.mil".

a. The 10 hour / 14 day PMS–1 inspection of the Spindle Lugs and Expanion Pins implemented by TB 1–1520–237–20–221 will continue until the initial NDI procedure IAW paragraph 8b(2) of this TB is accomplished.

b. The initial Spindle Lug NDI and Main Rotor Expandable Pin inspections will be conducted concurrently–

(1) During the initial NDI of each installed spindle, verify configuration conformance of the Main Rotor Expandable Pins, P/N 70103–08107–102 / 103, as follows –

(a) As each pin is removed, visually inspect for non–conforming segments. With the exception of pins manufactured by SHUR–LOK (MFG code 97393), all wide segments must have a slot to allow expansion of the segment when the handle is closed. SHUR–LOK pins have one wide segment in the middle of the pin that is not slotted.

(b) Pins will be rejected if any slotted or unslotted segments are missing or broken, or if there is a solid or partially slotted expandable segment. A link to supplemental visual information on allowable pin/slot configurations is available on the 1999 (UH–60–99–ASAM–09) page of the Black Hawk web site: "www.uhpo.redstone.army.mil". If you are unable to access the web page contact either the Technical POC IAW paragraph 16a, or the Logistical POC IAW paragraph 16b.

(c) If the Expandable Pin does not conform to the required configuration, contact the Technical POC IAW para16a before submitting a discrepant pin report or initiating the correction. After verifying discrepancy with the technical POC, correct IAW paragraph 9b.

(d) If the Expandable Pin (P/N 70103–08107–102/103) conforms, the initial pin conformation inspection is complete. Reuse the conforming pin.

(2) NDI all 4 Lugs of the spindle IAW the H–60 Main Rotor Hub Spindle Ultrasound NDI procedure.

(a) Contact the NDI POC IAW paragraph 16c for technical questions regarding the use of the inspection kit or application of the inspection procedures.

(b) If cracks are noted during the NDI inspection of the Main Rotor Spindle Lugs, correct IAW paragraph 9a.

c. Recurring NDI Inspection – After completion of the initial inspection, schedule a 100 hour recurring Ultrasound NDI of the Spindle Lugs IAW paragraph 8b(2) on the DA Form 2408–18. ULLS–A units will use this message as authority to implement inspection number A180 for the recurring 100 hour Spindle Lug Inspection.

d. After completing the initial NDI inspection, the following 10 hour / 14 day PMS1 inspections shall be implemented –

(1) Main Rotor Spindle Lugs – Re–implement the 10 hour / 14 day PMS1 inspection IAW TM 1–1520–237–PMS1 / 250–PMS1.

(2) Main Rotor Expandable Pin – (ULLS–A units will use “800” inspection for the recurring Expandable Pin inspection until a change to the PMS1 manual is printed).

(a) Release Expandable Pin handle from the lower nut and raise to the fully open position.

(b) Realign Pin handles and close. Resistance should be felt while moving handle from unlocked to locked.

(1) If no resistance is felt while moving the handle to the locked position, proceed to paragraph 9b(2).

(2) If no discrepancies are noted, the inspection is complete.

e. Items in stock – NDI all Spindles held in stock NLT 4 May 2001, or before installation on aircraft, whichever occurs first. Correct any discrepant spindle IAW 9a. Any spindles received from DEPOT (wholesale) after the initial 120 day period shall be inspected IAW paragraph 8b(2) prior to installation.

9.Correction Procedures.

a. Discrepant Main Rotor Spindle Lug –

(1) If indication of a crack is found during the NDI procedure –

(a) Replace the discrepant spindle, Main Rotor Expandable Pins, and Main Rotor Blade Assembly. Do not remove Lug Bushing from the Spindle.

(b) Contact technical POC in paragraph 16a to report results of the inspection. If directed to do so by the technical POC, submit a Quality Deficiency Report (QDR) for the discrepant component and hold all components removed IAW paragraph 10d.

(2) If cracked / broken Lug is found during an on aircraft visual inspection –

(a) Immediately notify the logistical POC IAW paragraph 16b of the inspection results.

(b) Replace the discrepant spindle, Main Rotor Blade Expandable Pins, and Main Rotor Blade Assembly.

(c) Contact technical POC in paragraph 16a to report results of the inspection. If directed to do so by the technical POC, submit a Quality Deficiency Report (QDR) for the discrepant component and hold all components removed IAW paragraph 10d.

b. Main Rotor Blade Expandable Pin –

(1) If non–conforming pin is identified IAW paragraph 8b(1) –

(a) Change the aircraft status to a red //X//.

(b) Fax the special report of discrepant item IAW paragraph 14f. Contact technical POC IAW paragraph 16a to confirm receipt.

(c) Following analysis of the component by AMCOM Engineering, the logistical POC will contact the unit and provide final disposition instructions.

(d) If additional information regarding Spindle and Main Rotor Blade history is necessary, the logistical POC will contact the unit POC.

(e) Prior to receipt of disposition instructions, units may choose to replace the affected attaching components to return the aircraft to flyable status. Annotate records to reflect the removal and replacement of the Main Rotor Spindle, Expandable Pin and Blade where the discrepant Expandable Pin was installed. Hold the removed components pending disposition instructions.

(2) If no resistance is felt IAW paragraph 8d(2) –

(a) With the handle in the unlocked position, check lower ring to see if it rotates freely around the pin shaft. If lower ring will not rotate or shows evidence of dirt or contaminants, clean out lower ring.

(b) Adjust the pin as necessary IAW TM 1–1520–237–23, paragraph 5–3–9.1 or TM 1–1520–250–23, paragraph 5.17.1.1. If the pin is conforming after adjustment, reuse the pin.

(c) If pin cannot be adjusted –

(1) Immediately replace the discrepant Main Rotor Blade Expandable Pin.

(2) Submit a CAT 1 QDR against the discrepant pin. Include the serial number (SN), Time Since New (TSN), and Time Since Last Installed (TSLI) for the following in block 22 of the QDR; "Spindle Assembly, Main Rotor Blade, Main Rotor Blade Cuff, Main Rotor Blade Expandable Pin".

10.Supply/Parts and Disposition.

a. Parts required – Items cited in paragraph 12c may be required to replace defective items, or items removed due to defective parts.

b. Requisitioning instructions – Requisition replacement parts using normal supply procedures. All requisitions shall use project code (CC 57–59) "XDI" (X–RAY DELTA INDIA).

NOTE

Project code "XDI" is required to track and establish a data base of stock fund expenditures incurred by the field as a result of SOF actions.

c. Bulk and Consumable Materials. – As required by the H–60 Main Rotor Hub Spindle Ultrasound NDI procedure. The Couplant provided with the P/N NEC–8102 NDI kit is sufficient to only inspect one aircraft. Refill for the Couplant is:

NOMENCLATURE	NSN	SIZE	COST
Ultrasound Couplant	6850–01–157–4348	1 Gallon	$57.59

d. Disposition – Submit QDR on discrepant Spindle Lug or broken Expandable Pin. Hold exhibit pending disposition instructions.

e. Disposition of Hazardous Material – IAW Environmental Protection Agency directives as implemented by your servicing environment coordinator (AR 200–1).

11.Special Tools, Jigs and Fixtures Required.

a. Ultrasound system Branson USD 15S or equivalent.

b. Ultrasound inspection kit P/N NEC–8102. The source for the inspection kit is NDT Engineering Corporation, 19260 Russel Road, Kent, WA, (253) 872–3565. Additional / Replacement sensors must be ordered directly from the kit manufacturer. Contact the Logistics POC in paragraph 16b regarding the availability of extra kits.

12.Application.

a. Category of Maintenance – AVUM / AVIM

(1) Aircraft downtime required to accomplish all 10 hour / 14 day inspection will be charged to AVUM.

(2) Aircraft downtime required to accomplish the NDI Inspection of the main Rotor Spindle Lugs will be charged to AVIM.

b. Estimated Time Required –

(1) NDI Inspection –

(a) Main Rotor Blade Removal / Install – Total of 1.2 man–hours per Main Rotor Blade using 3 people.

(b) NDI Inspection (after blade removal) – Total of 0.7 man–hour per spindle using 1 person.

(c) Total of 4.4 hours downtime for one end item.

(2) Correction –

(a) On aircraft Spindle Removal / Replacement – Total of 6 man–hours using 2 people.

(b) Total of 3 hours downtime for one end item.

c. Estimated cost impact to the field –

(1) H–60A/L Aircraft Only –

NOMENCLATURE	P/N / NSN	QTY	COST EA	TOTAL
Spindle Assy	70102–08200–69 1615–01–442–6926	4	$7,369.00	$29,476.00
Main Rotor Blade	70150–09100–043 1615–01–106–1903	4	$99,203.00	$369,812.00
Expandable Pin	70103–08107–102 1615–01329–0707	8	$168.00	$1344.00

(2) MH–60K Aircraft Only –

NOMENCLATURE	P/N / NSN	QTY	COST EA	TOTAL
Spindle Assy	70102–08200–70 NO NSN	4	$7,369.00	$29,476.00
Main Rotor Blade	70150–09100–045 NO NSN	4	$99,203.00	$369,812.00
Expandable Pin	70103–08107–103 NO NSN	8	$168.00	$1344.00

(3) Total Cost Per Aircraft = $427,632.00

d. TB / MWOs To Be Applied Prior To Or Concurrently With This Inspection – N/A

e. Publications Which Require Change As A Result Of This Inspection – TM 1–1520–237–23, TM 1–1520–237–PMS1, TM 1–1520–250–23, and TM 1–1520–250–PMS1 shall be changed to reflect this message. A copy of this message shall be inserted in the appropriate TM as authority to implement the change until the printed change is received.

13.References.

a. DA PAM 738–751, 15 Mar 99

b. TB 1–1520–237–20–221

c. TM 1–1520–237–23

d. TM 1–1520–237–PMS1

e. TM 1–1520–250–23

f. TM 1–1520–250–PMS1

g. TM 1–1500–328–23

h. TM 1–1500–335–23

i. H–60 Main Rotor Hub Spindle Lug Ultrasound NDI Procedure, 02 Nov 00

14. Recording and Reporting Requirements.

a. Reporting Compliance Suspense Date (Aircraft) – Upon entering requirements of this TB on DA Form 2408-13-1 on all subject MDS aircraft, Commanders will forward a priority message, datafax or E-Mail to Commander, AMCOM, ATTN: AMSAM–SF–A (SOF Compliance Officer), Redstone Arsenal, AL 35898–5000, IAW AR 95–1. Datafax number is DSN 897–2111 or commercial (256) 313–2111. E-Mail address is "safeadm@redstone.army.mil". The report will cite message, date of entry in DA Form 2408–13–1, the aircraft mission design series and serial numbers of aircraft in numerical order.

b. Task/Inspection Reporting Suspense Date (Aircraft) – Upon completion of inspection, Commanders will forward a priority message to the Logistical POC IAW paragraph 16b. The report will cite TB 1–1520–237–20–230, date of inspection, aircraft serial number, aircraft hours, and results of the inspection. Inspection and reports will be completed NLT 3 July 2001.

c. Reporting Message Receipt (Spares) – N/A

d. Task/Inspection Reporting Suspense Date (Spares) – Upon completion of inspection, Commanders and Facility Managers at Retail facilities will forward a priority message to the Logistical POC IAW paragraph 16b NLT 10 May 2001. Report the quantity inspected by condition code and the resulting condition code. Report by e–mail or datafax and provide local point of contact.

e. The following forms are applicable and are to be completed in accordance with DA Pam 738–751, 15 Mar 99.

NOTE

ULLS–A users will use applicable "E" Forms.

(1) DA Form 2408–5–1, Equipment Modification Record (Epandable Pin and Spindle Assembly)

(2) DA Form 2408–13, Aircraft Status Information Record

(3) DA Form 2408–13–1, Aircraft Inspection and Maintenance Record

(4) DA Form 2408–15, Historical Record for Aircraft

(5) DA Form 2408–16, Aircraft Component Historical Record

(6) DA Form 2408–18, Equipment Inspection List

(7) DA Form 2410, Component Removal and Repair/Overhaul Record. (Only when Spindle or Expandable Pins are removed, inspected and replaced).

(8) DD Form 1574/DD Form 1574–1, Serviceable Tag/Label (Color Yellow). Annotate remarks block with "Inspected Serviceable IAW TB 1–1520–237–20–230."

(9) DD Form 1577/1577–1, Unserviceable (Condemned) Tag/Label – Material (Color Red). Annotate remarks block with "Condemned IAW TB 1–1520–237–20–230 and mutilated per TM 1–1500–328–23."

(10) DD Form 1577–2/DD Form 1577–3, Unserviceable (Repairable) (Color Green). Annotate remarks block with "Unserviceable IAW TB 1–1520–237–20–230."

f. Special Report of Discrepant Main Rotor Blade Expandable Pin. Within 24 hours of discovery of a discrepant pin, submit a report directly to the AMCOM Utility Helicopter Systems Engineering, AMSAM–RD–AE–I–D–U, Datafax DSN 897–3844/5206 or (256) 313–3844/5206. A form to record this data is available on the safety page of the UH PMO Website "http://www.uhpo.redstone.army.mil". If unable to access the PMO Web page, contact the technical POC IAW paragraph 16a, or the logistical POC IAW paragraph 16b to receive a copy of the report form. The report shall contain the following information – SUBJECT: "Report of Discrepant Main Rotor Expandable Pin, TB 1–1520–237–20–230."

(1) Location of discrepant pin position (Lead or Lag).

(2) Part number and serial number of discrepant pin and location(s) of discrepant segment(s), TSN and TSLI in associated Spindle Cuff.

(3) Part number, serial number, and component total time of associated Main Rotor Spindle.

(4) Part number, serial number, and component total time of associated Main Rotor Blade.

(5) Part number, serial number, and component total time of associated Main Rotor Blade Cuff.

(6) Contact information (POC, commercial and DSN telephone numbers, unit, location, fax number, e–mail address).

15.Weight and Balance. N/A.

16.Points of Contact.

a. Technical point of contact for this TB is Mr. Darrell Hutson, AMSAM–RD–AE–I–D–U, DSN 897–2413 or (256) 313–2413. E–mail is “darrell.hutson@redstone.army.mil”. Datafax is DSN 897–3844/5206 or (256) 313–3844/5206. Alternate phone number is DSN 897–5198 or (256) 313–5198.

b. Logistical point of contact is Mr. Joe Hoover, AMSAM–DSA–UH–L, DSN 645–7898 or (256) 955–7898, datafax is DSN 897–3778 or (256) 313–3778. E–mail is “joe.hoover@uh.redstone.army.mil”.

c. Non–destructive Inspection (NDI) point of contact is MS. Sandra Ratley, AMSAM–DSA–WAG, DSN 788–8043 or (256) 842–8043, alternate is 1–888–832–7817, Datafax DSN 788–0572 or (256) 876–0572. E–mail is “sandra.ratley@redstone.army.mil”.

d. Wholesale materiel point of contact (Spares) is Ms. Julia Moore, AMSAM–MMC–VS–UB, DSN 897–1176 or (256) 313–1176, datafax is DSN 897–4769. E–mail is “julia.moore@redstone.army.mil”.

e. Forms and records point of contact for this TB is Ms. Ann Waldeck, AMSAM–MMC–RE–FF, DSN 746–5564 or (256) 876–5564, Datafax is DSN 746–4904. E–mail is “ann.waldeck@redstone.army.mil”.

f. Safety points of contact are –

(1) Primary – Mr. Harry Trumbull, (SAIC), AMSAM–SF–A, DSN 788–2095 or commercial (256) 313–2095, Datafax is (256) 313–2111. E–mail is “harry.trumbull@redstone.army.mil”.

(2) Alternate – Mr. Ron Price, AMSAM–SF–A, DSN 788–8636 or (256) 842–8636, datafax is (256) 313–2111. E–mail is “ron.price@redstone.army.mil”.

g. Foreign Military Sales recipients requiring clarification of action advised by this TB should contact:

(1) CW5 Joseph L. Wittstrom, Security Assistance Management, AMSAM–SA, DSN 897–0410 or (256) 313–0410. E–mail is “wittstrom–jl@redstone.army.mil”.

(2) Mr. Ronnie W. Sammons, AMSAM–SA–CS–NF, DSN 897–0408 or (256) 313–0408. Datafax is DSN 897–0411 or (256) 313–0411. E–mail is “sammonssrw@redstone.army.mil”.

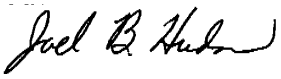
h. After hours contact AMCOM Command Operations Center (COC) DSN 897–2066/2067 or (256) 313–2066/2067. Huntsville, AL is GMT minus 5 hrs.

17.Reporting of Errors and Recommended Improvements. You can improve this TB. If you find any mistakes or if you know of a way to improve these procedures, please let us know. Mail you letter or DA form 2028 (Recommended Changes to Publications and Blank Forms) directly to: Commander, US Army Aviation and Missile Command, ATTN: AMSAM–MMC–LS–LP, Redstone Arsenal, AL 35898–5000. You may also submit your recommended changes by E–mail directly to ls–lp@redstone.army.mil. A reply will be furnished directly to you.

By Order of the Secretary of the Army:

Official:

ERIC K. SHINSEKI
General, United States Army
Chief of Staff



JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
0107901

DISTRIBUTION:
To be distributed in accordance with Initial Distribution Number (IDN) 313974, requirements for TB 1-1520-237-20-230.

The following format must be used if submitting an electronic 2028. The subject line must be exactly the same and all fields must be included; however only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17, and 27.

From: "Whomever" <whomever@avma27.army.mil>
To: Is–lp@redstone.army.mil

Subject: DA Form 2028

1. ***From:*** Joe Smith
2. *Unit:* home
3. ***Address:*** 4300 Park
4. ***City:*** Hometown
5. ***St:*** MO
6. ***Zip:*** 77777
7. ***Date Sent:*** 19–OCT–93
8. ***Pub no:*** 55–2840–229–23
9. ***Pub Title:*** TM
10. ***Publication Date:*** 04–JUL–85
11. *Change Number:* 7
12. *Submitter Rank:* MSG
13. ***Submitter FName:*** Joe
14. *Submitter MName:* T
15. ***Submitter LName:*** Smith
16. ***Submitter Phone:*** 123–123–1234
17. ***Problem:*** **1**
18. *Page:* 2
19. *Paragraph:* 3
20. *Line:* 4
21. *NSN:* 5
22. *Reference:* 6
23. *Figure:* 7
24. *Table:* 8
25. *Item:* 9
26. *Total:* 123
27. ***Text:***

This is the text for the problem below line 27.