DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

RE-SHIMMING OF TAIL ROTOR PIVOT BEARINGS AND INSPECTION OF CERTAIN BLADE ASSEMBLIES FOR SPECIFIED SERIAL NUMBERS CONTAINING COMPOSITE PIVOT BEARING RETAINERS ALL UH-60 AIRCRAFT

Headquarters, Department of the Army, Washington, D. C.
17 May 1996

NOTE
THIS PUBLICATION IS EFFECTIVE UNTIL RESCINDED OR SUPERSEDED.

1. Priority Classification. Routine

a. Aircraft In Use. Upon receipt of this Technical Bulletin (TB) the condition status symbol of the cited aircraft will be changed to a horizontal red "-". The horizontal red “-" may be cleared when the inspection of paragraph 8 below is completed. The affected aircraft shall be inspected as soon as practical but no later than the task/inspection suspense date.

b. Aircraft in Depot Maintenance. Shall be Inspected per paragraph 8.

c. Aircraft Undergoing Maintenance. Shall be Inspected per paragraph 8.

d. Aircraft in Transit. Shall be inspected at final destination

e. Maintenance Trainers (Category A, B, and Others) N/A.

f. Component/Parts In Stock Including War Reserves at All Levels (Depot and Others). Upon receipt of this TB all items listed in paragraph 6 below shall be placed in condition code "J" and retagged with a material condition tag/label suspended (brown tag) DD Form 1575 or label DD Form 1575-1. The remarks block must reference inspection required per this TB. Upon completion of this required inspection, item will be retagged either serviceable (yellow tag) DD Form 1574 or unserviceable/repairable (green tag) DD Form 1577-2 dependent upon the results

2. Task/inspection Suspense Date. Within 30 days upon receipt of TB.

3. Reporting Compliance Suspense Date. N/A

4. Summary of the Problem.

a. Recently manufactured tail rotor pivot bearings retainers were changed to a composite material from aluminum. This material change resulted in an increase in bond failures due to the change in adhesive used with the composite. In addition, the pivot bearings are Installed with a compressive preload through the use of shims, it has been determined that the current procedures in reference 13.a. allow installation of the pivot bearings with less than optimum preload.

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

c. The purpose of this TB is to inform UH-60 users of the revised procedures to determine correct bearing shim thickness to attain the correct assembly preload and require that this new shimming procedure be implemented within 500 flight hours. In addition, this TB will identify specific serial numbered tail rotor blades manufactured with composite retainers. These blades will require shim correction within 150 hours and once identified to the logistical POC will be corrected by a Sikorsky field service team.

5. End Items to be Inspected. All UH-60 aircraft tall rotor blades.

6. Assembly Components to be Inspected.

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Blade, Rotary Wing	70101-31000-043	1615-01-113-8188
Blade, Rotary Wing	70101-11200-044	1615-01-088-3230
Blade, Rotary Wing	70101-31000-043A	1615-01-326-1592

7. Parts to be Inspected N/A.

8. Inspection Procedures. Determine If a 70101-11200-044 blade assembly is installed, if records identify a -044 blade, inspection is complete and blades will require re-shimming within 500 hours per paragraph 9. If records identify an -043 blade, spar or blade serial number listed below will identify blade assemblies containing the composite retainer thus requiring re-shimming within 150 hours by a Sikorsky field team. All other -043 blades will require re-shimming per paragraph 9 within 500 hours. If you have one of the following serial numbered spar/blades, contact the logistical POC (paragraph 16).

NOTE

All blades subsequent to A009-04438 and A238-00873 are exempt from the re-shimming requirement, they have been shimmed at manufacture with the new procedures.

BLADE S/N	SPAR S/N	BLADE S/N	SPAR S/N
A009-01491	A398-06603	A009-04236	A398-06647
A009-04201	A398-06601	A009-04237	A398-06656
A009-04202	A398-06604	A009-04238	A398-06710
A009-04207	A398-06605	A009-04239	A398-06623
A009-04208	A398-06611	A009-04240	A398-06641
A009-04209	A398-06622	A009-04244	A398-06659
A009-04200	A398-06595	A009-04249	A398-06639
A009-04223	A398-06592	A009-04250	A398-06759
A009-04224	A398-06617	A009-04251	A398-06765
A009-04225	A398-06635	A009-04252	A398-06656
A009-04230	A398-06637	A009-04253	A398-06762

BLADE S/N	SPAR S/N	BLADE S/N	SPAR S/N
A009-04231	A398-06638	A009-04255	A398-06708
A009-04232	A398-06531	A009-04257	A398-06655
A009-04233	A398-06502	A009-04259	A398-06643
A009-04234	A398-06649	A009-04260	A398-06650
A009-04235	A398-06651	A009-04261	A398-06705
A009-04262	A398-06694	A009-04322	A398-06829
A009-04263	A398-06719	A009-04323	A398-06870
A009-04264	A398-06773	A009-04324	A398-06687
A009-04265	A398-06790	A009-04325	A398-06864
A009-04270	A398-06670	A009-04327	A398-06848
A009-04273	A398-06669	A009-04328	A398-06831
A009-04271	A398-06723	A009-04329	A398-06772
A009-04279	A398-06828	A009-04330	A398-06847
A009-04280	A398-06474	A009-04331	A398-06833
A009-04282	A398-06733	A009-04332	A398-06809
A009-04284	A398-06788	A009-04333	A398-06849
A009-04286	A398-06780	A009-04334	A398-06866
A009-04287	A398-0672	A009-04335	A398-06823
A009-04289	A398-0666	A009-04336	A398-06804
A009-04294	A398-06776	A009-04337	A398-06741
A09-04295	A398-06736	A009-04338	A398-06869
A009-04269	A398-06802	A009-04339	A398-06679
A009-04297	A398-06812	A009-04340	A398-06810
A009-04298	A398-06529	A009-04341	A398-06724
A009-04299	A398-06786	A009-04347	A398-06897
A009-04300	A398-06784	A009-04348	A398-06931
A009-04301	A398-06775	A009-04349	A398-06932
A009-04302	A398-06781	A009-04350	A398-06873
A009-04303	A398-06826	A009-04351	A398-06879
A009-04304	A398-06845	A009-04352	A398-06939
A009-04305	A398-06629	A009-04353	A398-06919
A009-04306	A398-06832	A009-04354	A398-06934
A009-04307	A398-06796	A009-04355	A398-06936
A009-04308	A398-06674	A009-04356	A398-06689
A009-04310	A398-06613	A009-04357	A398-06941
A009-04311	A398-06767	A009-04358	A398-06888
A009-04312	A398-06853	A009-04359	A398-06683

BLADE S/N	SPAR S/N	BLADE S/N	SPAR S/N
A009-04313	A398-06822	A009-04360	A398-06914
A009-04314	A398-06805	A009-04361	A398-06951
A009-04315	A398-06838	A009-04362	A398-06944
A009-04316	A398-06792	A009-04363	A398-06816
A009-04321	A398-06859	A009-04364	A398-06876
A009-04369	A398-06916	A009-04401	A398-06949
A009-04370	A398-06911	A009-04402	A398-06961
A009-04371	A398-06945	A009-04403	A398-06701
A009-04372	A398-06920	A006-04404	A398-06892
A009-04373	A398-06690	A009-04405	A398-06735
A009-04374	A398-06730	A009-04406	A398-06860
A009-04375	A398-06754	A009-04413	A398-06912
A009-04376	A398-06905	A009-04414	A398-06908
A009-04377	A398-06685	A009-04415	A398-06926
A009-04378	A398-06952	A009-04416	A398-06875
A009-04379	A398-06921	A009-04417	A398-06955
A009-04380	A398-06748	A009-04418	A398-06662
A009-04281	A398-06851	A009-04419	A398-06806
A009-04382	A398-06922	A009-04420	A398-06956
A009-04383	A398-06874	A009-04421	A398-06885
A009-04384	A398-06887	A009-04422	A398-06893
A009-04385	A398-06889	A009-04423	A398-06881
A009-04386	A398-06846	A009-04424	A398-06896
A009-04390	A398-06867	A009-04425	A398-06884
A009-04391	A398-06872	A009-04426	A398-06964
A009-04393	A398-06678	A009-04427	A398-06997
A009-04394	A398-06787	A009-04428	A398-06959
A009-04395	A398-06677	A009-04429	A398-06713
A009-04396	A398-06967	A009-04431	A398-07013
A009-04397	A398-06947	A009-04437	A398-06962
A009-04398	A398-06954		
A009-04399	A398-06842		
A009-04400	A398-06900		

9. Correction Procedures. Insert the following TB into respective manual until revisions are received.

a. Technical Manual TM1-1520-237-23: Revise paragraph 5.25.3.f., page 5-329 to reflect:

(1) Measure and record dimension “A” (see figure 5-105, page 5-329) between inner sides of horn.

(2) Measure and record dimension "B" (see figure 5-105) between the two surfaces of pivot bearing retainers bonded to blade spar

(3) Measure and record dimension "C1" and "C2" as the free height to each pivot bearing (compression screw removed) Average two height measurements taken on either side of bearing center hole to obtain dimension "C1" and "C2" respectively

(4) Add B + C1 + C2 and subtract 0.066 inch

(5) Subtract the result of step (4) from dimension "A" and divide by 2

(6) The result obtained in step 5 is the required shim thickness for each pivot bearing.

(7) Remove the required laminations from each 70101-11123-103 shim pack to obtain the shim thickness determined In step 6

NOTE

Keep pivot bearing from twisting during compression and align top and bottom plates when compressed.

b. Technical Manual TM 1-1520-237-23. Revise paragraph 5.25.3.h, page 5-330 to reflect: Install the compression screw In the bearing and compress the bearing sufficiently to allow installation of bearing and shim In blade Remove compression screw after bearing installation.

NOTE

The replacement of one bearing due to applicable criteria In TM 1-1520-237-23 does not require mandatory replacement of all four pivot bearings

c. Technical Manual TM 1-1520-237-23- Revise paragraph 5.25 1., NOTE, page 5-324 to reflect: The replacement of one bearing does not require mandatory replacement of all four pivot beings

10. Supply/Parts and Disposition.

a. Parts Required.

NOMENCLATURE	P/N	NSN
Shim	70101-11123-103	5365-01-096-1505

b. Requisitioning Instructions. Requisition replacement parts through normal supply channels

c. Bulk and Consumable Materials N/A.

d. Disposition Dispose of removed parts/components In accordance with normal supply procedures

e. Disposition of Hazardous Material N/A

11. Special Tools, Jigs and Fixtures Required N/A

12. Application

a. Category of Maintenance. AVIM for revised shim procedures or contractor team for identified serial numbered blades.

b. Time Required

(1) Total of 8 man-hours using 2 persons

(2) Total of 36 hours downtime for one end Item.

c. Estimated Cost Impact of Stock Fund Items to the Field N/A

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 shall be changed to reflect this TB 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.

TM 1-1520-237-23, Aviation Unit and Intermediate Maintenance for UH-60A/L and EH-60A Helicopters, dated 31 August 1994.

14. Recording and Reporting Requirements.

a. Reporting Compliance Suspense Date (Aircraft). N/A.

b. Task Inspection Reporting Suspense Date (Aircraft). Upon completion of inspection identifying blade assemblies with composite retainers, units will forward a priority message to Commander, ATCOM, ATTN: SFAE-AV-BH-L, Mr. Joe Hoover. The report will cite this TB number, date of Inspection, aircraft serial number, and component hours. Inspection and reports will be completed no later than 30 days after receipt of TB.

c. Reporting Compliance Suspense Date (Spares). N/A.

d. Task/Inspection Reporting Suspense Date (Spares). Upon completion of the inspection depot commanders an others holding stock shall forward a priority message report of results of this inspection to logistical POC below NLT 30 days after receipt of this TB. The report shall include quantity on hand and those which contain composite retainers.

e. The following forms are applicable and are to be completed in accordance with DA PAM 738-751,15 June 1992:

(1) DA Form 2408-5-1, Equipment Modification Record (Component).
(2) DA Form 2408-13, Aircraft Status Information Record.
(3) DA Form 2408-13-1, Aircraft Inspection and Maintenance Record
(4) DA Form 2408-14, Uncorrected Fault Record
(5) DA Form 2408-15, Historical Record for Aircraft.
(6) DD Form 1574 (Yellow Tag) for in stock items that are determined to be serviceable. (Mark inspected serviceable in accordance with this TB.)
(7) DD Form 1575 (Brown Tag) for in stock items In suspended status awaiting inspection. (Mark suspended in accordance with this TB.)
(8) DD Form 1577 (Red Tag) unserviceable (condemned) for in stock items that are determined to be unserviceable. (Mark In accordance with this TB.)
(9) DD Form 1577-2 (Green Tag) unserviceable (repairable) for in stock items that are determined to be repairable. (Mark unserviceable in accordance with this TB)

15. Weight and Balance. N/A.

16. Points of Contact.

a. Technical point of contact for this TB is Mr. Dan Kardell, AMSAT-R-ECU, DSA2 or commercial (314)263-0422.

b. Logistical point of contact for this TB is Mr. Joe Hoover, SFAE-AV-BH-L, DSN 693-0484 or commercial (314)263-0484, FAX DSN 693-1898 or commercial (314) 263-1898.

c. Forms and records point of contact for this TB Is Ms. Ann Waldeck, AMSAT-I-MDM, DSN 490-2318 or commercial (314)260-2318

d. Safety point of contact for this TB Is Mr. Jim Wilkins AMSAT-R-X DSN 693-2258 or commercial (314)263-2258.

e. Foreign Military Sales (FMS) recipients requiring clarification of action advised by this TB should contact CW5 Jay Nance/Mr. Ron Van Rees, AMSAT-I-IA, DSN 693-3826 or commercial (314)263-3826.

f. After hours contact ATCOM Command Operations Center (COC) DSN 693-2066/7 or commercial (314)263-2066/7.

17. Reporting of Errors and Recommending Improvements. You can help Improve this TB If you find any mistakes or if you know of a way to Improve these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Commander, US Army Aviation and Troop Command, ATTN AMSAT-I-MP, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798 A reply will be furnished to you. You may also submit your recommended changes by E-mail directly to <mpmt%/avma28@st-louis-emh7.army mil> A reply will be furnished directly to you. Instructions for sending an electronic 2028 may be found at the back of this manual

By Order of the Secretary of the Army:

DENNIS J. REIMER
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
02216

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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***:

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DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ARE OBSOLETE.

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 decagram = 10 grams = .35 ounce
1 hectogram = 10 decagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

PIN: 062445-000