

URGENT

*TB 1-2840-229-20-26

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

ALL UH-1 AND AH-1 SERIES HELICOPTERS WITH
THE T53 ENGINE INSTALLED, INTERIM RETIREMENT
LIFE FOR THE P/N 1-100-078-07 IMPELLER

Headquarters, Department of the Army, Washington, D. C.
07 January 2000

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NOTE
THIS PUBLICATION IS EFFECTIVE UNTIL RESCINDED OR SUPERSEDED.

1. **Priority Classification.** URGENT.

NOTE
See AR 95-1, paragraph 6-6.a., for exception authority of major commanders.

a. **Aircraft in Use.** Upon receipt of this TB, the condition status symbol of the cited aircraft will be changed to a **Red Horizontal Dash (-)**. The **Red Horizontal Dash (-)** entry shall state "Inspect aircraft engine historical records IAW SOF UH-1-00-02 and AH-1-00-03 (TB 1-2840-229-20-26) prior to task/inspection suspense date in paragraph 2." The **Red Horizontal Dash (-)** may be cleared when the inspection in paragraph 8. and the correction procedures in paragraph 9 are completed. Inspect aircraft not flying as soon as practical but no later than 24 Dec 99. Failure to comply with the requirements of this TB within the time frame specified will cause the status symbol of affected aircraft to be changed to a **Red X**.

b. **Aircraft In Depot Maintenance.** Aircraft will not be issued until compliance with this TB has been completed.

c. **Aircraft Undergoing Maintenance.** Aircraft will not be released until compliance with this TB has been completed.

d. **Aircraft In Transit.**

(1) **Surface/Air Shipment.** Same as paragraph 1.a.

(2) **Ferry Status.** Same as paragraph 1.a.

*This TB supersedes USAAMCOM Safety of Flight Messages UH-1-00-01 and AH-1-00-02 (1021 55Z, DEC 99), and UH-1-00-02 and AH-1-00-03 (311326Z, DEC 99).

(3) Those Aircraft, which have a DD 250 and are at US Helicopters will be inspected prior to ferry to final destination.

e. **Maintenance Trainers (Category A and B).** Same as paragraph 1.a.

f. **Component/Parts in Stock at All Levels (Depot and Others) Including War Reserves** Upon receipt of subject message or this TB (whichever occurs first), the material condition tags of all items in all condition codes listed in paragraph 6. and 7. shall be annotated to read "SOF UH-1-00-02/AH-1-00-03, (TB 1-2840-229-20-26), Interim retirement life for P/N 1-100-078-07, Impeller not complied with."

(1) **Wholesale Stock.** Report receipt of subject message or this TB (whichever occurs first), IAW paragraph 14.c.(1). Upon receipt of subject message or this TB (whichever occurs first), all serviceable items (condition codes A, B, C, D, and E) listed in paragraphs 6. and 7. located in wholesale depot storage shall be placed in condition code J and tagged with a suspended tag/label material, DD Form 1576/DD Form 1576-1. Do not remove original condition tags. Report compliance with subject message or this TB (whichever occurs first), IAW paragraph 14.d.(1). Upon completion of inspection, original material condition tags should be updated to reflect compliance.

(2) **Retail Stock.** Report receipt of subject message or this TB (whichever occurs first), IAW paragraph 14.c.(2). Upon receipt of this message/TB commanders and others maintaining retail stock at installation level and below shall contact the supported aviation unit to perform the inspection required by paragraph 8. and the correction procedures of paragraph 9 on discrepant materiel. Disposition of discrepant materiel will be IAW paragraph 10. Report compliance with subject message or this TB IAW paragraph 14.d.(2).

g. **Components/Parts In Work (Depot Level and Others).** Items listed in paragraphs 6 and 7 in work will not be issued until compliance with this TB has been completed.

2. **Task/inspection Suspense Date.** Prior to next flight.

3. **Reporting Compliance Suspense Date.** No later than 28 Dec 99 IAW paragraph 14.a. of subject message or this TB.

4. **Summary of the Problem.**

a. **Background.** Several commercial failures of the Compressor Centrifugal Impeller (P/N 1-100-078-07) and the resulting engineering analysis have shown the Impeller to be a life limited component. These commercial failures were a result of cracks, which emanated from within the bore of the small drain holes in the Impeller. The Impeller is a DA Form 2410 tracked item; however, the part did not have a defined retirement life. Although the final analysis is not yet complete, sufficient information has been documented to establish an interim retirement life on the T53 Impeller. AMCOM engineering is also attempting to develop a reliable inspection procedure, which could potentially extend the service life of the Impeller.

b. **For Manpower/Downtime and Funding Impacts,** see paragraph 12.

c. **The Purpose of this TB is to:**

(1) Establish an interim retirement life of 5000 hours Time Since New (TSN) on the Impeller (P/N 1-100-078-07).

(2) Remove for repair all T53 engines with Impellers that exceed 5000 hours TSN.

5. **End Items to be Inspected.** All UH-1 and AH-1 series aircraft.

6. Assembly Components to be Inspected.

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Engine, ACFT, Turboshaft, T53-L-13B	1-000-060-22	2840-00-134-4803
Engine, ACFT, Turboshaft, T53-1-703	1-000-060-23	2840-00-621-1860

7. Parts to be Inspected.

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Rotor, Compressor (Impeller)	1-100-078-07	2840-00-176-3745

8. Inspection Procedures.

NOTE

If the records check shows that an Impeller, P/N 1-100-078-13, is installed, the inspection is complete.

NOTE

If the TSN for the impeller can not be determined from the Engine records, call the 2410 HOT-LINE at DSN 897-2410 or (256) 313-2410.

a. Review engine DA Form 2408-16 to obtain the TSN for the Impeller, P/N 1-100-078-07, NSN 2840-00-176-3745.

(1) If TSN is less than 5000 hours, apply the correction procedures IAW paragraph 9.a.

(2) If TSN is more than 5000 hours, or if time can not be determined, apply the correction procedures IAW paragraph 9.b.

9. Correction Procedures.

a. If the TSN for the Impeller is less than 5000 hours, annotate the engine records to show that the inspection is complete and that replacement of the Impeller is required at 5000 hours time since new.

(1) Change entries on the Engine DA Form 2408-16 for the Impeller as follows:

(a) Blocks 6d and 6g: Change from "CC" to "RC".

(b) Block 6j: Enter 5000 hours.

(c) Block 6k: Enter replacement due time. Calculate per equation, as follows:

(block 6j - block 6h + block 6e)	- from Engine DA Form 2408-16 entry for Impeller
+ (block 6e - block 6h)	- from Aircraft Time Change DA Form 2408-16 entry for Engine
= block 6k	- on Engine DA Form 2408-16 entry for Impeller

b. If the TSN for the impeller is 5000 hours or greater, or can not be determined, the Engine is considered unserviceable. Change the aircraft condition status symbol to a **Red X**. The **Red X** entry shall state "Replace T-53 Engine IAW SOF message UH-1-00-02, AH-1-00-03 (TB 1-2840-229-20-26)." Replacement Engines may not be immediately available. Coordinate with the Log POC prior to removing engines from aircraft on a **Red X** condition status symbols. Maintain aircraft on a **Red X** condition status symbols in flyable storage to include ground run-ups. Report aircraft on a **Red X** condition status symbols Non Mission Capable Supply (NMCS).

10. Supply/Parts and Disposition.

a. Parts Required - Items cited in paragraph 6. may be required to replace defective items.

b. Requisitioning Instructions. Requisition replacement parts using normal supply procedures. All requisitions shall use project code (CC 57-59) "XF9".

NOTE

Project code "XF9" is required to track and establish a data base of stock fund expeditors incurred by the field as a result of SOF actions.

c. Bulk and Consumable Materials. N/A.

d. Disposition. Disposal of removed parts/components by using normal supply procedures. All turn-in documents must include project code (CC 57-59) XF9.

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

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

12. Application.

a. Category of Maintenance.

(1) AVUM for the records review and removal and reinstallation of the Engine.

(2) Aircraft downtime will be charged to AVUM maintenance.

b. Estimated Time Required.

(1) Total of 0.5 man-hours using 1 person to conduct the records review.

(2) Total of 28.0 man-hours using 2 persons to remove and reinstall the Engine.

(3) Total of 14 hours downtime for one end item.

c. Estimated Cost Impact to the Field.

NOMENCLATURE	NATIONAL STOCK NUMBER	P/N	QTY	COST EA.	TOTAL \$
Engine, AFCT, Turbohaft, T53-L-13B	2840-00-134-4803	1-000-060-22	1	\$416,768	\$416,768

Total cost per UH-1 = \$416,768

NOMENCLATURE	NATIONAL STOCK NUMBER	P/N	QTY	COST EA.	TOTAL \$
Engine, AFCT, Turbohaft, T53-L-703	2840-00-621 -1860	1-000-060-23	1	\$158,215	\$158,215

Total cost per AH-1 = \$158,215

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 TB. A copy of this TB shall be inserted in the appropriate TM as authority to implement the change until the printed change is received

- (1) TB 1-1520-341-01.
- (2) TM 55-2840-229-23 Series.

13. References. N/A.

14. Recording and Reporting Requirements.

a. Reporting Compliance Suspense Date (Aircraft). Upon entering requirements of subject message or this TB on DA Form 2408-13-1 on all subject MDS aircraft, forward a priority message, datafax or e-mail to CDR, AMCOM, ATTN: AMSAM-SF-A (SOF Compliance Officer), Redstone Arsenal, AL 35898-5000, IAW AR 95-1. Datafax number is DSN 897-2111 or (256) 313-2111. E-mail address is <safeadm@redstone.army.mil>. The report will cite UH-1-00-02 and AH-1-00-03 (TB 1-2840-229-20-26), date of entry in DA Form 2408-13-1, the aircraft Mission Design Series (MDS) and serial numbers of aircraft in numerical order.

b. Task/Inspection Reporting Suspense Date (Aircraft). Upon completion of inspection, units will forward a priority message to the logistical POC in paragraph 16.b. The report will cite subject message and TB number, date of inspection, engine serial number, engine and component hours, and results of the inspection. Inspection and reports will be completed no later than 30 Dec 99.

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

d. Task/inspection Reporting Suspense Date (Spares).

(1) Material In Wholesale Depot Storage. Report compliance with subject message or this TB (whichever occurs first) to the wholesale material point of contact (spares) listed in paragraph 16.c. within 7 days of the date of subject message or this TB (whichever occurs first) on DD Form 1225. Provide the cost of compliance with the message/TB to include an estimate of the cost reimbursable funding required to move serviceable items on hand listed in paragraphs 6 and 7 to a work area, unpack the materiel, repack the materiel after inspection by AMCOM inspectors, and to return the materiel to storage, as appropriate. Report, by original serviceable condition code, the quantity of materiel placed in condition code J. Report by e-mail or datafax and provide local point of contact.

(2) Material In Retail Storage. Report compliance with subject message or this TB to the logistical point of contact in paragraph 16.b within 14 days of the date of subject message. 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 Pamphlet 738-751, Dated 15 Mar 1999:

NOTE

Unit Level Logistics System-Aviation (ULLS-A) users will use applicable electronic "-E" forms.

NOTE

ULLS-A users will use this TB as authority to change the component master file.

- (1) DA Form 2408-5-1, Equipment Modification Record (Engine).
- (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, annotate with the Engine and Impeller serial numbers.

(5) DA Form 2408-16, Aircraft Component Historical Record (Engine).

(6) DA Form 2410, Component Removal and Repair/Overhaul Record.

(7) DD Form 1574/DD Form 1574-1, Serviceable Tag/Label Materiel (color yellow). Annotate remarks block with "Inspected serviceable IAW UH-1-00-02, AH-1-00-03, (TB 1-2840-229-20-26)".

(8) DD Form 1575/DD Form 1575-1, Suspended Tag/Label Materiel (color brown). Annotate remarks block with "Suspended IAW UH-1-00-02, AH-1-00-03, (TB 1-2840-229-20-26)".

(9) DD Form 1577-2/DD Form 1577-3, Unserviceable (reparable) Tag/Label Materiel (color green). Annotate remarks block with "Unserviceable IAW UH-1-00-02, AH-1-00-03, (TB 1-2840-229-20-26)".

15. Weight and Balance. N/A.

16. Points of Contact.

a. Technical point of contact for the message/TB is Mr. Mark Heitert, AMSAM-RD-AE-P, DSN 897-4964 or (256) 313-4964; Datafax is 897-4961. E-mail is <mark.heitert@redstone.army.mil>..

b. Logistical point of contact for the message/TB is Mr. Charles Elkins, AMSAM-DSA-UH-U, DSN 645-0073 or (256) 955-0073; Datafax is DSN 645-6590 or (256) 955-6590. E-mail is <charlie.elkins@uh.redstone.army.mil>.

c. Wholesale Materiel point of contact (spares) is Ms. Cindy Cash, AMSAM-MMC-VS-UN, DSN 897-1547 or (256) 313-1547; Datafax is DSN 897-1541 or (256) 313-1541. E-mail is <cash-cy@redstone.army.mil>.

d. Forms and records point of contact for the message/TB is Ms. Ann Waldeck, AMSAM-MMC-RE-FF, DSN 746-5564 or (256) 876-5564; Datafax is DSN 746-4904 or (256) 876-4904; E-mail is <waldeck-ab@redstone.army.mil>.

e. Safety point of contact for the message/TB is Mr. Robert D. Brock, AMSAM-SF-A, DSN 788-8632 or (256) 842-8632; Datafax is DSN 897-2111 or (256) 313-2111; E-mail is <bob.brock@redstone.army.mil>.


f. Foreign Military Sales (FMS) recipients requiring clarification of action advised by the message/TB should contact either CW5 Joseph L. Wittstrom, Security Assistance Management, AMSAM-SA, DSN 897-0410 or commercial (256) 313-0410; E-mail is <wittstromjl@redstone.army.mil>. Alternate POC is 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 <sammons-rw@redstone.army.mil>. Huntsville, Alabama is GMT minus 6 hrs.

g. After hours contact AMCOM Command Operations Center (COC) DSN 897-2066/2067 or commercial (256) 313-2066/2067.

17. Reporting of Errors and Recommending 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 your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to: Commander, US Army Aviation and Missile Command, ATTN: AMSAM-M MC-LS-LP, Redstone Arsenal, Alabama 35898-5230. A reply will be furnished to you. You may also send in your comments electronically to our E-mail address at <ls-lp@redstone.army.mil>, or by datafax at DSN 788-6546 or commercial (256) 842-6546. Instructions for sending a DA Form 2028 by E-mail may be found at the back of most Technical Manuals.

By Order of the Secretary of the Army:

Official:


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RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



THEN...JOT DOWN THE
DOPE ABOUT IT ON THIS FORM.
CAREFULLY TEAR IT OUT, FOLD IT
AND DROP IT IN THE MAIL.

SOMETHING WRONG WITH PUBLICATION

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER

PUBLICATION DATE

PUBLICATION TITLE

BE EXACT PIN-POINT WHERE IT IS

PAGE
NO.

PARA-
GRAPH

FIGURE
NO.

TABLE
NO.

IN THIS SPACE, TELL WHAT IS WRONG
AND WHAT SHOULD BE DONE ABOUT IT.

TEAR ALONG PERFORATED LINE

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER

SIGN HERE

THE METRIC SYSTEM AND EQUIVALENTS

WEIGHT MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
 1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
 1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
 1 Kilogram = 1000 Grams = 2.2 lb.
 1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
 1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
 1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
 1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
 1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

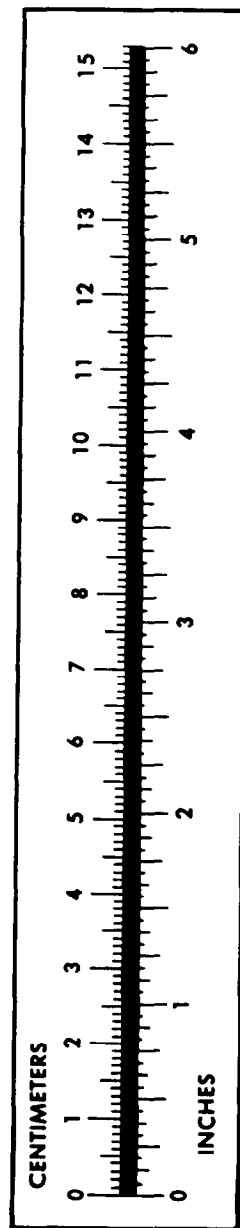
TEMPERATURE

$5/9(^{\circ}\text{F} - 32) = ^{\circ}\text{C}$
 212° Fahrenheit is equivalent to 100° Celsius
 90° Fahrenheit is equivalent to 32.2° Celsius
 32° Fahrenheit is equivalent to 0° Celsius
 $9/5^{\circ}\text{C} + 32 = ^{\circ}\text{F}$

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
its	Liters	0.473
arts	Liters	0.946
allons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
ers	Gallons	0.264
ms	Ounces	0.035
ograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pounds-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
ometers per Liter	Miles per Gallon	2.354
ometers per Hour	Miles per Hour	0.621



PIN: 077741-000