

# URGENT

\*TB 1-2840-229-20-31

## DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

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### SUSPECT ENGINE REDUCTION GEAR BOX (RGB) INSPECTION FOR ALL AH-1 AND UH-1H/V SERIES HELICOPTERS

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Headquarters, Department of the Army, Washington, D. C.  
15 March 2002

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#### NOTE

THIS PUBLICATION IS EFFECTIVE UNTIL RESCINDED OR  
SUPERSEDED.

**1. Priority Classification. URGENT.**

#### NOTE

IAW AR 95-1, paragraph 6-14.a, MACOM commanders may authorize temporary exception from TB 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 TB, make the following entry on the DA Form 2408-13-1. Enter a Red Horizontal Dash (-) status symbol with the following statement (as appropriate): "Inspect Engine/ODDS Oil Filter IAW AH-1-02-ASAM-01 (or) UH-1-02-ASAM-03 (TB 1-2840-229-20-31) within the next 10 flight hours, but NLT 1 Mar 02." Clear the Red Horizontal Dash (-) entry when the procedures IAW paragraph 8 are completed. The affected aircraft shall be inspected as soon as practical, but no later than 01 Mar 02. Commanders who are unable to comply with the requirements of this TB within the time frame specified will upgrade the affected aircraft status symbol to a Red (X).

**b. Aircraft in Maintenance.**

**(1) Aircraft in AVUM, AVIM or Depot Level Maintenance.** Same as paragraph 1.a.

**(2) Aircraft at Contractor Facility.** U.S. Helicopters will perform initial inspections/corrections on DD 250 aircraft prior to those aircraft departing for ferry to final destination.

**c. Aircraft in Transit.** Same as paragraph 1.a.

**d. Maintenance Trainers (Category A and B).** N/A.

\*This TB supersedes USAAMCOM Aviation Safety Action (ASAM) Messages AH-1-02-ASAM-01 and UH-1-02-ASAM-03 (both 142110Z FEB 02).

e. **Component/Parts in Stock at All Levels (Depot and Others) Including War Reserves.** Upon receipt of this TB, depot and materiel activity commanders will ensure the materiel condition tags of all items in all condition codes listed in paragraph 6 are annotated to read: "AH--1-02--ASAM--01/UH--1-02--ASAM--03 (TB 1--2840--229--20--31), suspect engine reduction gear box (RGB), not complied with."

(1) **Wholesale Stock.** Upon receipt of this TB, depot and materiel activity commanders will ensure all items in condition codes A, B, C, D, and E, as listed in paragraph 6, are placed in condition code J and tagged with a Suspended Tag/Label - Materiel, DD Form 1575/DD Form 1575-1. Do not remove original condition tags. Report compliance with this TB IAW paragraph 14.b.(2) NLT 22 Feb 02.

(2) **Retail Stock.** N/A.

f. **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 TB.

2. **Task/Inspection Suspense Date.** Complete the inspection IAW paragraph 8 within the next 10 flight hours, but NLT 01 Mar 02, and report IAW paragraph 14.a.(2) NLT 04 Mar 02.

3. **TAMMS Reporting Compliance Suspense Date.** Report compliance IAW paragraph 14.a.(1) NLT 22 Feb 02.

4. **Summary of the Problem.**

a. The T53--L-13B and T53--I-703 Engine reduction gear box (RGB) (P/N 1--030--350--18 and P/N 1--030--350--19) gear configuration is comprised of three planetary gears with silver plating applied during manufacture. The silver plating was improperly applied on some of these gears, resulting in the plating flaking from the gears during engine operation. Maintenance personnel have reported incidents of chip lights and noted accumulation of silver particles on the chip detectors. Although the silver flakes are not magnetic, a significant accumulation of silver can ground the chip detector and activate a warning light. Inspections have also found oil pump chunk screens with silver flakes and engine oil filters with silver particles. The gears will function satisfactorily without the silver plating but there is a risk of engine oil system contamination due to an oil filter bypass condition and/or fluctuations in oil pressure and/or temperature. New planetary gears will be manufactured without the silver plating and uninstalled planetary gears in stock will have the silver removed.

b. **Manpower/Downtime and Funding Impacts.** See paragraph 12.

c. **The Purpose of this TB is** to perform an initial and recurring inspections of all engines with suspect reduction gear box, P/N 1--030--350--18 or P/N 1--030--350--19, for silver flaking in the oil pump chunk screen and the ODDS/Engine oil filter.

5. **End Items to be inspected.** All AH-1 and UH-1H/V aircraft.

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

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Engine Aircraft (UH-1)	1--000--060--22	2840--00--134--4803
Engine Aircraft (AH-1)	1--000--060--23	2840--00--621--1860
Carrier Assembly	1--030--350--18	2840--01--459--1267
Carrier Assembly	1--030--350--19	2840--01--462--0765

**7. Parts to be Inspected.**

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Chunk Screen	1-300-659-01	4730-01-422-7845
Engine Oil Filter	AC-A926E-440	2945-01-115-9547
ODDS Filter	AC-B014F-123Y1	2945-01-319-0352

**8. Inspection Procedures.****NOTE**

**Supplemental information for this inspection can be viewed at: (use only lower case) <[www.redstone.army.mil/sof/suppl/uh1a0203.pdf](http://www.redstone.army.mil/sof/suppl/uh1a0203.pdf)> or may be obtained from the unit's supporting LAR or logistics POC in paragraph 16.b.**

**a.** Inspect the engine records (DA Form 2408-16 and DA Form 2410, if required) to determine the part number of the reduction gear box (RGB) installed and the serial numbers of the planetary gears installed in the RGB.

**(1)** If the engine contains a RGB with P/N 1-030-350-12, the inspection is complete. Clear the Red Dash (-) entry from paragraph 1.a. Compliance with this TB is complete.

**NOTE**

**New planetary gears with serial number 011903307262 and subsequent will be manufactured without silver plating. The first two digits represent the year of manufacture. The balance is a combination vendor identifier and sequence number. A gear starting with "99" was manufactured in 1999 and as such is prior to the serial number cut-off. It is possible to have different year gears with the same last 10 digit serial numbers (ie. 991903307262 and 011903307262). Also, planetary gears in stock will have the silver plating stripped and will be marked with the suffix "SPR" following the serial number. RGBs with only these series planetary gears installed will not require inspection IAW this TB.**

**NOTE**

**The RGB (carrier) assembly was recently added to the 2410 database for tracking purposes. For initial reporting purposes the RGB assembly was assigned 1000 hours TSN. For the purpose of this inspection, the current total TSN for the individual planetary gears installed in the RGB will be used.**

**(2)** If the engine contains a RGB with P/N 1-030-350-18 or 1-030-350-19, check the RGB DA Form 2408-16 to determine the total component hours on the planetary gears (1-030-193-05) installed in the RGB.

**NOTE**

**Initial inspection is not required until the RGB has accumulated a minimum of 5 operating hours.**

**(a)** If the planetary gears (1-030-193-05) have less than 5 operating hours, clear the entry from paragraph 1.a. and make the following entry on the DA Form 2408-13-1. Enter a Red Horizontal Dash (-) status symbol with the following statement (as appropriate): "Inspection of suspect Engine RGB required IAW AH-1-02-ASAM-01 (or) UH-1-02-ASAM-03 (TB 1-2840-229-20-31) at [###] hours." (### - Calculate time required for initial inspection).

(b) If the planetary gears (1-030-193-05) have 5 operating hours or more, proceed with inspection requirements.

**NOTE**

**When performing "Inspections and Source Determination of Contaminated Oil" procedures required below, do not discard the oil cooler as directed in TM 55--2840--229--23, paragraph 1-66, item 18. Drain and flush IAW TM 55--1520--210--23, paragraph 4-95 or TM 55-1520-236-23, paragraph 4-79.**

**NOTE**

**Cleaning of the engine oil filter is not authorized. The cleaning procedure currently described in TM 55-2840-229-23 is being deleted.**

**b. For aircraft without ODDS:** Remove and inspect the main engine oil filter for presence of silver flakes.

(1) If no silver flakes are present in the filter, the inspection is complete. Re--install or replace filter as necessary. Proceed to paragraph 8.d.

(2) If silver flakes are present and blockage does not exceed one third of the filter surface area. Re--install or replace filter, as necessary, IAW paragraph 9. Proceed to paragraph 8.d.

(3) If silver flakes are present and blockage exceeds one third of the filter surface area, or the engine oil filter element has indications of a bypass, perform "Inspections and Source Determination of Contaminated Oil" per TM 55--2840--229--23, paragraph 1-66.

**c. For aircraft with ODDS:** Remove and inspect the ODDS filter for presence of silver flakes.

(1) If no silver flakes are present in the ODDS filter, the inspection is complete. Reinstall the filter IAW paragraph 9. Proceed to paragraph 8d.

(2) For first time inspection when silver is found in the ODDS filter, remove and inspect the main engine oil filter element for presence of silver flakes. If the blockage exceeds one third of the filter surface area, or the engine oil filter element has indications of a bypass, perform "inspections and source determination of contaminated oil" per TM 55--2840--229--23, paragraph 1-66.

(3) If less than one third of the filter surface is clogged, re--install or replace the engine oil filter and the ODDS filter, as necessary, IAW paragraph 9.

**d. Concurrent with the inspections of paragraph 8.b. or 8.c. above:** For the first inspection when silver is found and at final recurring inspection if silver was found during any recurring inspection, inspect the oil pump chunk screen.

(1) If more than one third of the screen surface area is clogged and unusual oil pressure or temperature fluctuations were observed in the aircraft, perform "Inspections and Source Determination of Contaminated Oil" per TM 55--2840--229--23, paragraph 1-66.

(2) If both conditions in paragraph 8.d.(1) do not exist (more than one third of the screen surface area is clogged and unusual oil pressure or temperature fluctuations were observed), clean and reinstall the oil pump chunk screen.

(3) Clear the Red Dash (-) entry from paragraph 1.a.

**e. Perform recurring inspections as follows:**

**NOTE**

**For recurring inspections of ODDS--equipped aircraft, main engine oil filter inspections are only required if the ODDS filter shows indication of bypass.**

(1) The inspection requirements above are required for the initial inspection; during all PMDs until reaching 20 operating hours; at 50 operating hours; and at 50 hour intervals (100, 150, 200) until reaching 200 operating hours on the RGB.

(2) Upon completion of initial and subsequent recurring inspections, clear the entry from paragraph 1.a. and make the following entry on the DA Form 2408-13-1, as required. Enter a Red Horizontal Dash (-) status symbol with the following statement (as appropriate for the subsequent inspection): "Inspect Engine/ODDS oil filter IAW AH-1-02-ASAM-01 (or) UH-1-02-ASAM-03 (TB 1-2840-229-20-31) at (###)." (NOTE: ### indicates the time that subsequent inspection is due).

(3) At 200 hours operating time on the RGB:

(a) If no silver flakes are present, the recurring inspections may be discontinued. Ensure the chunk screen is inspected IAW paragraph 8.d.

(b) If silver flakes are present, continue 50 hour recurring inspections until no silver is found in the oil filter.

**9. Correction Procedures.**

a. Re-install or replace engine oil filter element as required by paragraph 8 utilizing procedures in TM 55-2840-229-23.

b. Re-install or replace ODDS filter element as required by paragraph 8 utilizing procedures in TM 55-1520-210-23 or TM 55-1520-236-23.

**10. Supply/Parts and Disposition.**

a. **Parts Required.** Items cited in paragraphs 6 and 7 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) X1Q.

**NOTE**

Project code X1Q is required to track and establish a data base of stock fund expenditures incurred by the field as a result of TB/message actions.

c. **Bulk and Consumable Materials.**

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Engine Oil Filter O-Ring	MS29561--146	5330-00-067-9994
ODDS Filter O-Ring	M83248/A--239	5330-00-165-1957
Preformed Packing	M83248/1-115	5330-00-166-1066
Preformed Packing	M83248/1-122	5330-00-167-5111

d. **Disposition.** Dispose of removed parts/components using normal supply procedures. All turn-in documents must include project code (CC 57-59) X1Q.

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.** AVUM/AVIM. Aircraft downtime will be charged to AVUM/AVIM maintenance, as appropriate. Report aircraft non-mission capable maintenance (NMCM) while undergoing inspection and correction IAW this TB.

**b. Estimated Time Required.**

- (1) Time to complete inspection (including chunk screen):
  - (a) Total of 4 man-hours using 1 person.
  - (b) Total of 4 hours downtime for one end item.
- (2) Time to complete inspection (not including chunk screen):
  - (a) Total of 1 man-hour using 1 person.
  - (b) Total of 1 hours downtime for one end item.
- (3) Time for engine replacement, if required:
  - (a) Total of 24 man-hours using 2 persons.
  - (b) Total of 12 hours downtime for one end item.

**c. Estimated Cost Impact to the Field.**

NOMENCLATURE	NSN	P/N	QTY	COST EA.	TOTAL \$
Engine Oil Filter	2945-01-115-9547	AC-A926E--440	1	\$56.50	\$56.50
Engine Oil Filter O--Ring	5330-00-067-9994	MS29561-146	1	\$0.39	\$0.39
ODDS Filter	2945-01--319-0352	AC-B014F-123Y1	1	\$51.26	\$51.26
ODDS Filter O--Ring	5330-00--165-1957	M83248/A-239	1	\$0.99	\$0.99
Preformed Packing	5330-00--166-1066	M83248/1--115	1	\$0.15	\$0.15
Preformed Packing	5330-00--167-5111	M83248/1-122	2	\$0.18	\$0.36

Total cost per aircraft (not ODDS-equipped) = \$56.89

Total cost per aircraft (ODDS-equipped) = \$52.76

NOTE: AMCOM does not expect an Engine to require replacement as a result of this TB and is therefore not included in the total cost. The cost for an engine (UH-1) is \$396,658.94.

**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 SOF message/TB.** The following publications shall be changed to reflect 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) TM 55--2840--229--23.
- (2) TM 55--1520--210--23.
- (3) TM 55--1520--236--23.

**13. References.**

- a. DA PAM 738--751, 15 Mar 99.
- b. TM 55--2840--229--23-1.
- c. TM 55--1520--210--23.
- d. TM 55--1520--236--23.

**14. Recording and Reporting Requirements.****a. Aircraft:**

**(1) TAMMS Reporting Compliance Suspense.** Upon entering requirements of this TB on DA Form 2408-13-1 for all effected aircraft, commanders will 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, NLT date specified in paragraph 3. Datafax number is DSN 897-2111 or (256) 313-2111. E-mail address is "safeadm@redstone.army.mil". The report will cite this message and TB number, date of entry in DA Form 2408-13-1, the aircraft mission design series and serial numbers of aircraft in numerical order.

**(2) Task/inspection Reporting Suspense.** Upon completion of the initial inspection, commanders will forward a priority message to the logistical point of contact listed in paragraph 16.b. The report will cite this TB and message number, date of inspection, aircraft and engine serial number, aircraft and component hours, and results of the inspection. Inspection and reports will be completed NLT date specified in paragraph 2.

**b. Wholesale Spare Parts/Assemblies.** N/A.

**c. Retail Spare Parts/Assemblies.** N/A.

**d. 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.

**(1)** DA Form 2408-5-1, Equipment Modification Record (reduction gear box assembly).

**(2)** DA Form 2408-13, Aircraft Status Information Record.

**(3)** DA Form 2408-14-1, Uncorrected Fault Record.

**(4)** DA Form 2408-16, Aircraft Component Historical Record (only if reduction gearbox assembly is removed).

**(5)** DA Form 2410, Component Removal and Repair/Overhaul Record (only if reduction gearbox assembly is removed).

**(6)** DD Form 1575/DD Form 1575-1, Suspended Tag/Label -- Materiel (color brown). Annotate remarks block with "Suspended IAW AH-1-02-ASAM-01 or UH-1-02-ASAM-03 (TB 1-2840-229-20-31)."

**(7)** DD Form 1577-2/DD Form 1577-3, Unserviceable (Reparable) Tag/Label - Materiel (color green). Annotate remarks block with unserviceable IAW AH-1-02-ASAM-01 or UH-1-02-ASAM-03 (TB 1-2840-229-20-31)."

**15. Weight and Balance.** N/A.

**16. Points of Contact.**

**a.** Technical point of contact for this TB is Mark Heitert, AMSAM-RD-AE-P, DSN 897-4964 or (256) 313-4964. Fax is DSN 897-4961 or (256) 313-4961. E-mail is "mark.heitert@redstone.army.mil".

**b.** Logistical point of contact for this TB is Mr. Charlie Elkins, AMSAM-DSA-UH-U, DSN 645-0073 or (256) 955-0073. Fax number is DSN 897-3762 or (256) 313-3762. E-mail address is "charlie.elkins@UH.redstone.army.mil".

c. Wholesale Materiel point of contact (spares) is Bruce O’Gorman, AMSAM--MMC--AV--SA, DSN 897--1555 or (256) 313--1555. Fax is DSN 897--4796. E--mail is "bruce.ogorman@redstone.army.mil".

d. Forms and records point of contact for this TB is Ms. Ann Waldeck, AMSAM--MMC--MA--NM, DSN 746--5564 or (256) 876--5564. Fax is DSN 746--4904 or (256) 876--4904. E--mail is "ann.waldeck@redstone.army.mil".

e. Safety points of contact are:

(1) Primary: Mr. Randall Rushing (SAIC), AMSAM--SF--a, DSN 897--2092 or (256) 313--2092. Fax is DSN 897--2111 or (256) 313--2111. E--mail is "randall.rushing@redstone.army.mil".

(2) Alternate: Mr. Ron Price, AMSAM--SF--A, DSN 788--8636 or (256) 842--8636. Fax is (256) 313--2111. E--mail is "ron.price@redstone.army.mil".

f. Foreign military sales recipients requiring clarification of action advised by this TB should contact Mr. Ronnie W. Sammons, AMSAM--SA--CS--NF, DSN 897--6856 or (256) 313--6856. Fax is DSN 897--6630 or (256) 313--6630. E--mail is "ronnie.sammons@redstone.army.mil".

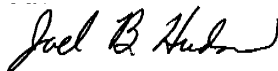
g. After hours contact the AMCOM Operations Center (AOC) at DSN 897--2066/7 or (256) 313--2066/7.

**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--MMC--MA--NP, 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 <2028@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:

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

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