

# URGENT

TB 1-1520-240-20-154

## DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

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### MANDATORY MAINTENANCE ON TRANSIENT AND AVOID BANDS ON THE CRUISE GUIDE INDICATOR ON ALL CH-47D AIRCRAFT

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Headquarters, Department of the Army, Washington, D. C.  
3 May 2004

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#### NOTE

THIS PUBLICATION IS EFFECTIVE UNTIL RESCINDED OR SUPERSEDED.

#### NOTE

MACOM Commanders may authorize temporary exception from message requirements in accordance with AR 95-1, Chapter 6. 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.

#### 1. Summary

##### a. Background -

(1) Following combat operation of CH-47D aircraft in Iraq and in the mountains of Afghanistan, pilots reported that continuous flight operations were conducted with the Cruise Guide Indicator (CGI) in the transient region, accompanied by excursions into the avoid region, usually encountered in turbulence.

(2) The CGI instrument provides a visual indication of loads incurred on critical dynamic components in flight. It is divided into three bands; normal (green band), transient (yellow band), and avoid (red/yellow striped band). Numerous operations were reportedly conducted at high gross weights, extreme aft center of gravity conditions, high torques, airspeeds exceeding VH, and at high density altitudes. The impact of operation in the upper regions of the yellow (transient) band and any area in the red/yellow(avoid) band of the CGI results in a significant decrease in the available fatigue life for the critical safety items on the rotor controls and drive components. The reductions in available fatigue lives are dependent upon component loads, aircraft loads, and the amount of time spent under these conditions.

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b. Message Purpose —

- (1) Advise flight crews on operational limits of the CGI.
- (2) Require re-marking of the CH-47D CGI.
- (3) Require a one time visual inspection of the instrumented, aft, fixed link, part number (P/N) 414C3056-3.

2. **End Items to be inspected.** All CH-47D aircraft.

3. **Assemblies/Components/Parts Affected.**

NOMENCLATURE	PART NUMBER	NSN
Cruise Guide Indicator Cockpit Display	152BUA34-2	6610-01-118-7577
	114VS805-3	6610-01-118-7577
Aft Fixed Link Actuator Assembly	414C3056-3	1615-01-117-1135
Aft Fixed Link Rod End	114CS123-1	3120-00-110-8542

**NOTE**

When complying with the requirements of this message, complete forms and records entries in accordance with DA PAM 738-751. ULLS-A units will use applicable "E" forms.

4. **Initial TAMMS (The Army Maintenance Management System) Compliance Requirements.**

a. Upon receipt of this Technical Bulletin (TB) make the following entry on the DA Form 2408-13-1. Enter a red horizontal dash **//-//** status symbol with the following statement: "Comply with requirements of CH-47-04-ASAM-02 (TB 1-1520-240-20-154) before [#####.#] aircraft hours, but no later than 13 May 2004." (Calculate [#####.#] as current aircraft flight hours plus 10 hours). Commanders who are unable to comply with the requirements of this Technical Bulletin within the time frame specified will upgrade the affected aircraft status symbol to a red **//X//**.

**NOTE**

The TAMMS Compliance Reporting Form is available at "www.redstone.army.mil/sof/tamms.xls" (use lower case letters only) or may be obtained from the units servicing LAR. Alternate forms may be approved by the AMCOM SOF Compliance Officer.

**NOTE**

The TAMMS Compliance Report only confirms the unit has made the initial logbook entry for assigned aircraft. TAMMS Compliance Reports will include aircraft serial numbers (in numerical order), date of entry on DA Form 2408-13-1, unit address, local point of contact name and phone number.

b. TAMMS Compliance Report – Submit TAMMS Compliance Report via priority email to "safeadm@redstone.army.mil" 6 May 2004 from the message date in accordance with AR 95-1. If email is not available, the report may be faxed to: SOF Compliance Officer at DSN 897-2111 or (256) 313-2111.

5. **Task/Inspection Compliance Requirements.**

**NOTE**

The Task/Inspection Reporting Form is available at "www.redstone.army.mil/sof/log.xls <www.redstone.army.mil/sof/log.xls>" (use lower case letters only) or may be obtained from the units servicing LAR. This report will cite the message number, date of inspection, aircraft serial number, aircraft hours, component serial number, component hours, and results of the inspection.

- a. Aircraft – Submit Task/Inspection Compliance Reports as follows –

- (1) Initial Report – Submit Task/Inspection compliance report for this Technical Bulletin to Logistic point of contact no later than 24 May 2004. This report will be submitted using the reporting form in accordance with the note above.

- (2) Follow-on report – Provide a report using the reporting form above to the technical point of contact if the limits of paragraph 7.e. have been exceeded.

- b. Retail Stock – Installation level and below) – N/A

- c. Wholesale Stock – (including Depot Stock, Depot Maintenance and Single Stock Fund) – N/A

## 6. Special Provisions to Message Requirements (Aircraft)

- a. Aircraft in AVUM, AVIM or Depot level maintenance - Commanders, facility managers and contractors will not issue aircraft until they are in compliance with this message.

- b. Aircraft at contractor facility – Contractor facilities will inspect DD250 aircraft prior to those aircraft departing for ferry to final destination.

- c. Aircraft in transit – Unit Commanders in receipt of deployment orders and are unable to comply prior to the date specified in paragraph 4. a. may defer initial requirements in accordance with surface/air shipment or ferry status instructions, as appropriate.

- d. Surface/Air shipment – Comply with message requirements within 10 flight hours/14 days or arrival.

- e. Ferry status/aircraft away from home station – Comply with message requirements within 10 flight hours/14 days of arrival.

- f. Maintenance Trainers (Category A and B) – N/A.

- g. Aircraft on red //X// status symbol may be maintained in flyable storage. Ground run-ups at normal operating rotor RPM are authorized.

## 7. Technical Procedures/Instructions..

- a. Unit Commanders are to ensure flight crews are briefed on flight operations with the CGI in the yellow (transient) band and the prohibition of flight operations in the red/yellow striped (avoid) band.

- b. Instruction must ensure a thorough understanding of the CGI and adherence to the Operator's Manual limitations detailed in TM 1-1520-240-10, paragraphs 2-14-2, 2-14-3, 5-2-2, 5-2-5, 5-5-2, 5-5-3, 5-6-2, 7-1-3, 7-7-2, 7A-1-2, 7A1-3, and 7A-7-2. In addition to the -10 paragraphs, the following supplemental information is provided on the CGI cockpit display:

- (1) Operation in any area in the red/yellow striped avoid band of the CGI results in a significant decrease in the available fatigue life for the Critical Safety Items of the rotor controls and drive components.

- (2) The reductions in available fatigue lives are dependent upon component loads, aircraft loads and the amount of time spent under these conditions.

### NOTE

To re-mark the cockpit Cruise Guide Indicator, Cockpit Display, removal is not necessary.

### NOTE

If Figure 1 is not visible at the bottom of this message, it can be viewed at (use lower case letters only)

“<https://ams14.redstone.army.mil/safety/sof/pic/c47a0402.pdf>  
<<https://ams14.redstone.army.mil/safety/sof/pic/c47a0402.pdf>>”  
or “<https://www.chinook.redstone.army.mil/logon.asp>  
<<https://www.chinook.redstone.army.mil/logon.asp>>”, or  
contact the logistical point of contact in paragraph 13.

- c. Re-marking of the CH-47D CGI, part number 152BUA34-2 or 114VS805-3 shall be performed within 10 flight hours/14 days per the instructions below.

- (1) Utilizing Figure 1, cut out the “re-marked” Cruise Guide Indicator template.
- (2) Cut out the red/yellow striped (avoid) band from the Figure 1 “re-marked” CGI template.
- (3) Center the “re-marked” template on the aircraft CGI (P/N 152BUA34-2 or 114VS805-3).
- (4) Tape the outside edges of the “re-marked” template to the CGI.
- (5) Apply red instrument marking tape to the CGI display glass at the location where the red/yellow striped band was removed from the Figure 1 template. If instrument tape is unavailable then a piece of red tape placed on the glass at the beginning of the new red/yellow striped region denoted by the “re-marked” template is sufficient.
- (6) Remove the “re-marked” template and outside edge tape to detach the template from the CGI display.
- (7) To ensure the CGI glass is always positioned correctly, a torque stripe (also known as slip-page mark) shall be applied extending from the outer edge of the display glass to the edge of the instrument.

**NOTE**

Measuring with a protractor placed in the center of the gauge, the red band of the new avoid region begins at 63 degrees above horizontal. The red band arc length of the new avoid region is 1 7/16". The new yellow band arc is 5/16" long.

**NOTE**

The yellow band on the re-marked CGI represents 100% to 120% rotor control/drive system design load. The red (avoid) band on the re-marked CGI begins at 120%.

d. If environmental conditions and/or mission requirements result in flight operations with the CGI registering continuously (greater than 45 seconds) in the newly re-marked yellow (transient) band, the flight crews shall take action to return to operations in the green (normal) band of the CGI. No forms entries need be made.

e. If environmental conditions and/or mission requirements result in flight operations with the CGI registering continuously (greater than 45 seconds) in the newly re-marked red (avoid) band, the flight crews shall take action to return to operations in the green band of the CGI.

(1) Flight crews shall record the estimated time, airspeed, pressure altitude, temperature, gross weight, and approximate needle position in the upper or lower half of the avoid region on DA Form 2408-13-1. This information shall be provided in accordance with para 5. a. (2) as soon as possible to the technical point of contact in paragraph 13 to determine maintenance action impact on a case by case basis.

(2) Upon mission completion, enter a circle red //X// status symbol on the DA Form 2408-13-1 with the following statement: “operate aircraft in accordance with paragraph 7.4.2 of CH-47-04-ASAM-2.” Aircraft restricted to operations within the inoperative Cruise Guide Indicator envelope in accordance with TM 1-1520-240-10, paragraphs 5-2-5, 5-5-2, 5-5-3, 5-6-2, 7A-1-2, and 7A-1-3.

**NOTE**

The visual inspection of the Aft Fixed Link Rod Ends (P/Ns 414C3056-3 and 114CS123-1) may be accomplished while the components are installed on the aircraft.

**WARNING**

If visual inspections are to be performed on aircraft, ensure no FOD enters the rotor head assembly.

f. Parts Inspection – for all CH-47D aircraft, visually examine the installed Aft instrumented link rod ends (P/N 114CS123-1), for bending/distortion, cracks, and other obvious defects. Visually examine external

rod end bearing threads for damage. No thread root damage is permitted on the bearing threads. Any damage requires removal of the instrumented link assembly, per TM 55-1520-240-23-5, Chapter 6 and disposition in accordance with paragraph 10.d.

g. The inspection is complete when:

- (1) All assigned pilots and aircrew are briefed on the requirements of this message.
- (2) The CGI is modified in accordance with paragraph 7.c.
- (3) The applicable inspections in paragraph 7.f have been performed.

h. Clear the initial entry from paragraph 4.2 and note compliance on DA Form 2408-5-1 (rod end bearing) and DA Form 2408-15.

**8. Procedures/Instructions for Assemblies/Components/Parts In Work or In Stock (at all levels including war reserves)** – Annotate the serviceability tag with: “Message CH-47-04-ASAM-02, Transient and Avoid Bands of the Cruise Guide Indicator, not complied with”. Do not remove original condition tags.

**9. Special Tools and Fixtures Required.** N/A.

**10. Supply/Parts (Requisition/Disposition)**

a. Parts Required –

AFT Fix Link, P/N 414C3056-5, NSN 1615-01-117-1135, Qty. 1, Cost ea., \$6312.00, Total \$6312.00.  
Total cost per aircraft = \$6312.00

b. Bulk and Consumable Materials – Tape, Pressure Sensitive Adhesive Red, P/N 1872M, NSN 7510-00-015-0812.

c. Requisitioning Instructions – Requisition replacement parts using normal supply procedures. All requisitions shall use project code (CC 57-59) “X2Q” (X-Ray–Two–Quebec).

**NOTE**

Project Code “X2Q” is required to track and establish a data base of Stock Fund expenditures incurred by the field as a result of message actions.

d. Disposition of discrepant parts/components – Units will submit a CAT 1 QDR with a tag referencing this Technical Bulletin, the serial number of the part, and the aircraft serial number. The discrepant parts/components shall be held pending disposition instructions from technical point of contact in paragraph 13. If instructed to dispose of using normal supply procedures, all turn-in documents must include project code (CC 57-59) “X2Q” (X-Ray-Two-Quebec)

e. Disposition of Hazardous Material – N/A.

**11. Maintenance Application.**

a. Category of Maintenance – AVUM.

**NOTE**

The time stated below does not include time for maintenance operational checks, maintenance test flights, or flight crew briefings.

b. Estimated Time Required –

(1) Time to Complete Inspection – Total of 2–man–hours using 2 persons with 1 hour per end item.

**12. Publication Requirements**

a. References -

- (1) AR 95-1.
- (2) AR 200-1.
- (3) DA PAM 738-751.
- (4) TM 1-1520-240-10.
- (5) TM 55-1520-240-23.

b. Publications Changes -

(1) TM 1-1520-240-10 shall be changed to reflect this Technical bulletin. A copy of this Technical Bulletin will be used as authority to implement this change until the official change is received. Additionally, a copy of this Technical Bulletin will be inserted into the aircrews reading file until the official TM changes are received. Specific changes to the -10 are as follows:

(a) Change Figures 2-14-1 and 5-2-1 to reflect the same length red/yellow striped arc as in figure 1 "Remarkd" gage. Measuring with a protractor placed in the center of the gauge, the red band of the new avoid region begins at 63 degrees above horizontal. The red band arc length of the new avoid region is 1 7/16". The new yellow band arc is 5/16" long.

(b) Paragraph 5-5-1 shall be modified to insert the following statement "Any excursion into the red band of the Cruise Guide Indicator for more than 45 seconds requires an entry on the DA Form 2408-13-1. Provide the following information: aircraft gross weight, FAT, pressure altitude, total time in the red zone, and needle position within the red zone (i.e. lower half or upper half).

(2) TM 55-1520-240-23-7, Task 8-91, 8-288, add the following note: "ensure instruments are marked in accordance with TM 1-1520-240-10 limitations".

**13. Points of Contact.**

a. Technical points of contact are:

(1) Primary - Robert G. Duarte AMSRD-AMR-AE-C, DSN 645-6194 or (256) 955-6194, datafax is (256)313-4726. E-mail is "robert.duarte@peoavn.redstone.army.mil".

(2) Alternate - Tim Rickmeyer ,AMSRD-AMR-AE-C, DSN 897-8040, or (256) 313-8040, datafax is (256) 313-4726. Email is "timothy.rickmeyer@peoavn.redstone.army.mil".

b. Logistical points of contact are:

(1) Primary - Bill Olson, SFAE-AV-CH-CS, DSN 897-0721 or (256) 313-0721, fax is DSN 897-4726 or (256) 313-4726. E-mail is "william.olson@peoavn.redstone.army.mil".

(2) Alternate - Norm Huston, SFAE-AV-CH-CS, DSN 897-0752 or (256) 313-0752, fax is DSN 897-4348 or (256) 313-4348. Email is "norm.huston@peoavn.redstone.army.mil".

c. Wholesale Materiel point of contact (SPARES) is Ms. Geri Reddy, AMSAM-MMC-AV-CA, DSN 897-1454 or (256) 313-1454, fax is DSN 897-1106. E-mail is "geri.reddy@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. Frank Rosebery (SAIC), AMSAM-SF-A, DSN 788-8631 or (256) 842-8631. Fax is DSN 897-2111 or (256) 313-2111. E-mail is "frank.rosebery@redstone.army.mil".

(2) Alternate - Mr. Russ Peusch, AMSAM-SF-A, DSN 788-8632 or (256) 842-8632. Fax is DSN 897-2111 or (256) 313-2111. E-mail is "russel.peusch@redstone.army.mil".

f. Foreign Military Sales point of contact is Mr. Ronnie W. Sammons, AMSAM-SA-AS-UT, DSN 897-0875 or (256) 313-0875. Fax is DSN 897-0411 or (256) 313-0411. E-mail is "ronnie.sammons@redstone.army.mil".

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

**NOTE**

A listing of published safety messages can be viewed at  
"https://ams14.redstone.army.mil/safety/sof/index.html  
<https://ams14.redstone.army.mil/safety/sof/index.html>".  
This is a secured website which requires an Army Knowledge Online  
(AKO) ("www.us.army.mil<www.us.army.mil> ID and password.

**NOTE**

If Figure 1 below has been deleted or is not available go to (use lower  
case letters only)  
"https://ams14.redstone.army.mil/safety/sof/pic/c47a0402.pdf or  
<https://ams14.redstone.army.mil/safety/sof/pic/c47a0402.pdf> or"  
"https://www.chinook.redstone.army.mil/logon.asp  
<https://www.chinook.redstone.army.mil/logon.asp>".

Supplement to CH-47-04-ASAM-02

UNMARKED CGI

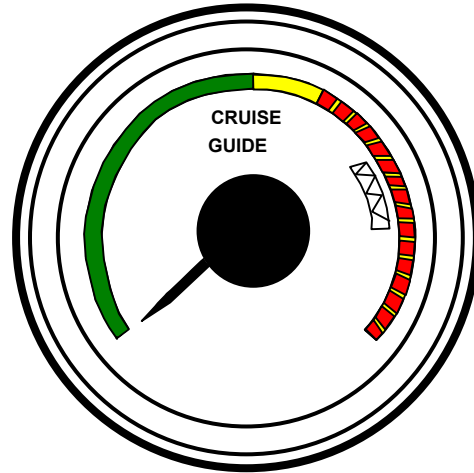


CRUISE GUIDE INDICATOR

(REFER TO SECTION V FOR ADDITIONAL INFORMATION)

-  NORMAL OPERATION
-  TRANSIENT
-  AVOID
-  TEST

RE-MARKED CGI



RE-MARKED CRUISE GUIDE INDICATOR





-  Normal Operation, Green
-  Transient, Yellow
-  Avoid, Red/Yellow
-  Test

FIGURE 1

.....NOTE.....

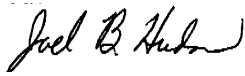
....Insure that the diameter of the diagram matches the  
 ....diameter of the gauge. The inner diameter of the bands is 1.4".  
 ....Measuring with a protractor placed in the center of the  
 ....gauge, the red band of the new avoid region begins at 63  
 ....degrees above horizontal. The Red Band Arc length of the  
 ....new avoid region is 1 7/16". The new Yellow Band Arc is  
 ....5/16" long.



By Order of the Secretary of the Army:

**PETER J. SCHOOMAKER**  
*General, United States Army*  
*Chief of Staff*

Official:

  
**JOEL B. HUDSON**  
*Administrative Assistant to the*  
*Secretary of the Army*  
0412404

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**TB 1-1520-240-20-154**

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: <2028-@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.