

URGENT

TB 1-1520-240-20-156

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

REQUIREMENT FOR INITIAL AND RECURRING EDDY CURRENT INSPECTION FOR ALL FORWARD AND AFT SWASHPLATE ROTATING RINGS ON ALL CH-47D, CH-47F, MH-47D AND MH-47E AIRCRAFT

Headquarters, Department of the Army, Washington, D. C.
31 January 2005

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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THIS PUBLICATION IS EFFECTIVE UNTIL RESCINDED OR SUPERSEDED.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 – Recent inspection of over one hundred H-47 swashplate rotating rings in overhaul revealed the following anomalies: (1) fatigue cracks emanating from the bearing retention flange; (2) a serial number (SN) from an unapproved source; and (3) maintenance induced mechanical damage. The swashplate rotating ring life is based on a specific usage spectrum. Loads derived from this spectrum were utilized during fatigue testing to substantiate the current rotating ring life. Consequently, the fatigue cracked rotating rings, with relatively low flight hours, were most likely cracked under loads and airspeeds in excess of currently authorized limits. In addition, mechanical damage appearing to have been induced from drifts, punches, and/or screwdrivers on the rotating ring, inner diameter, may develop into further crack initiation sites.

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b. Message Purpose —

(1) Rescind all CH-47 fleet Airworthiness Releases (AWRs) permitting operations up to 54,000 pounds. (The MH-47 54,000 lb. capability is not affected by this Technical Bulletin.)

(2) Emphasize to the fleet to utilize only authorized tools and to exercise caution when conducting maintenance on the swashplate assembly.

(3) Require an initial and recurring (100 flight hours for CH-47D/F and 150 flight hours for MH-47D/E), Eddy Current inspection for all forward and aft swashplates incorporating rotating rings from unapproved sources.

(4) Require replacement of swashplates incorporating rotating rings from unapproved sources.

2. End Items Affected. All H-47 series aircraft.

3. Assemblies/Components/Parts Affected.

a. Suspect/discrepant assemblies/components/parts –

NOMENCLATURE	PART NUMBER	NSN
Fwd/Aft Rotating Ring Assembly	114R3464-9	1615-01-114-6125
	114R3464-11	1615-01-313-2241

b. Assemblies/components/parts to be inspected –

NOMENCLATURE	PART NUMBER	NSN
Swashplate Assy Fwd	145R3551-17	1615-01-395-0006
	145P3551-19	1615-01-473-4376
	145R3551-1	1615-01-115-3623
	145R3551-11	1615-01-352-8575
	145R3551-5	1615-01-315-5133
Swashplate Assy Aft	145R3551-18	1615-01-395-0007
	145R3551-20	1615-01-475-9838
	145R3551-2	1615-01-115-3610
	145R3551-12	1615-01-352-8576
	145R3551-6	1615-01-317-2432

NOTE

When complying with the requirements of this Technical Bulletin, complete forms and records entries in accordance with DA PAM 738-751. ULLS-A units will use appropriate “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-47-05-SOF-01 before [####.#] aircraft hours, but no later than 19 Jan 2005.” (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 POC name and phone number.

b. TAMMS Compliance Report – Submit TAMMS Compliance Report via priority email to “safeadm@redstone.army.mil” no later than 11 Jan 2005 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 Reporting Requirements.

NOTE

The Task/Inspection Reporting Form is available at “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 serial number, and results of the inspection.

a. Aircraft – Submit Task/Inspection Compliance Report for this Technical Bulletin to Log POC no later than 21 Jan 2005.

b. Retail Stock – (Installation level and below) – Report receipt of this Technical Bulletin to Log POC no later than 11 Jan 2005. Provide unit POC, address and phone number. Submit Task/Inspection Compliance Report for this Technical Bulletin to Log POC no later than 21 Jan 2005.

c. Wholesale Stock – (Including Depot Stock, Depot Maintenance and Single Stock Fund) – Report receipt of this Technical Bulletin to Wholesale POC no later than 11 Jan 2005. Provide local POC, address and phone number. Report compliance with this Technical Bulletin in accordance with paragraph 8 to Wholesale POC no later than 21 Jan 2005.

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 Technical Bulletin.

b. Aircraft at contractor facility – Boeing Helicopters will inspect DD250 aircraft prior to those aircraft departing for ferry to final destination.

c. Aircraft in transit –

(1) Surface/Air Shipment – Comply with Technical Bulletin requirements within 10 aircraft hours/14 days of arrival.

(2) Ferry Status Aircraft away from home station – Comply with Technical Bulletin requirements within 10 aircraft hours/14 days of arrival.

d. Maintenance Trainers (Category A and B) – Comply with Technical Bulletin requirements no later than 4 Mar 2005.

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

7. Technical Procedures/Instructions.

NOTE

Supplemental information (Addendum) for this Technical Bulletin can be viewed at (use lower case letters only)
“https://ams14.redstone.army.mil/safety/sof/pic/c47s0501.pdf”

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a. Aircrews will insert the following CAUTIONS into the appropriate Operator's Manual (-10) in Chapter 5 (before paragraph 5-5-2) and Chapter 7 (before paragraph 7-1-2) respectively.

CAUTION

Strict compliance with the airspeed limitations provided in TM 1-1520-240-10, figures 5-5-1/2, TM 1-1520-252-10, figures 5-5-1/-4, and TM 1-1520-271-10, figures 5-5-1/2 is required regardless of cruise guide indicator operational status. In addition, adherence to in flight cruise guide limitations shall also be maintained.

CAUTION

Continuous power available is the only basis for all performance planning calculations except for emergency conditions (i.e. single engine capability).

b. 54,000 Pound CH-47 AWR Rescission - All CH-47 AWRs authorizing 54,000 pound maximum gross weight are hereby rescinded. The CH-47 fleet is no longer authorized to operate aircraft at 54,000 pounds and are required to operate aircraft in accordance with the limits posted in the aircraft Operator's Manual. Crewmembers and maintenance personnel are to immediately remove and dispose of all CH-47, 54,000 pound AWRs from aircraft log books, reading files, and maintenance files.

c. PREVENTION OF MAINTENANCE INDUCED MECHANICAL DAMAGE TO SWASHPLATE ROTATING RINGS - Commanders/Facility Managers will ensure all maintenance personnel are briefed to emphasize that all maintenance, specifically in and around the swashplate area (for the purpose of this message), is performed using only approved tools and procedures listed in the applicable TM. Special attention should be given to avoid the possibility of tools slipping or dropping on the swashplate rotating ring (PN 114R3464-9/-11), bearing retention flange.

d. Conduct visual inspection of the forward and aft swashplate assemblies/rotating ring to determine the component SN.

(1) The rotating ring (PN 114R3464-9/-11) SN must have one of the following prefixes: "TM", "GA", "BCW", "ILS", "TZ", or "W". These prefixes indicate the component is from approved source of supply.

(2) If any rotating ring SN begins with anything other than "TM", "GA", "BCW", "ILS", "TZ", or "W", the swashplate is unserviceable and must be disposed of in accordance with paragraph 10. d.

NOTE

Newly manufactured swashplates that have not been through overhaul and have less than 100 flight hours (CH-47) or 150 flight hours (MH-47) Time Since New (TSN) are exempt from the initial Eddy Current inspection but must comply with the new recurring inspection which begins at 100 hours TSN (CH-47) and 150 hours TSN (MH-47).

e. The following swashplate rotating rings were recently inspected (Eddy Current) at overhaul and are exempt from the initial inspection but must comply with the new recurring inspection which begins at 100 flight hours Time Since Overhaul (TSO) for CH-47 aircraft and at 150 flight hours TSO for MH-47 aircraft. Additionally, swashplates overhauled on or after 14 Dec 04 are also exempt from the initial Eddy Current inspection as required. above.

(1) BCW-0024, BCW-181, BCW-187, BCW-188, BCW-194, BCW-195, BCW-206, BCW-237, BCW-243, BCW-277, BCW-290, BCW-559, BCW-585, BCW-600, BCW-603, BCW-742, BCW-749, BCW-787, BCW-788, BCW-798, BCW-807, BCW-843, BCW-854, BCW-872, BCW-879, BCW-902, BCW-916, BCW-959, BCW-1013, BCW-1038, BCW-1065, BCW-1080, BCW-1122, BCW-1123, BCW-1170, BCW-1180, BCW-1192, BCW-1217, BCW-1252, BCW-1283, BCW-1284, BCW-1300, BCW-1368, BCW-1387, BCW-1407, BCW-1435, BCW-1455, BCW-1507, BCW-1584, BCW-1588, BCW-1620, BCW-1702, BCW-1709, BCW-1720, BCW-1724, BCW-1732, BCW-1733, BCW-1741, BCW-1748, BCW-1767, BCW-1811, BCW-1822, BCW-1829, BCW-1843, BCW-1858, BCW-1866, BCW-1888, BCW-1908, BCW-1923, BCW-1925, BCW-2001, BCW-2010, BCW-2039, BCW-2074, BCW-2385, ILS-156, TZ-0217, TZ-0220, TZ-0334, TZ-0345, W1108461-2, W1142562-1, W1142367-4, W1202008-1,

W1202014-4, W1202017-5, W1202017-6, W1295179-2, W1295182-6, W1295198-1, W1295199-6, W1381775-4, W1469321-3, W1469328-2, W1536939-9, W1540611-3, W1593747-3, W1630347-2, W1699540-1, W1701963-5, W1701963-6, W1701964-4, W1878359-5, W1893010-6, W1924351-2, W1924531-2, W1962014-5, and W4701965-5.

NOTE

In addition to the SNs specified above, several aircraft were inspected in accordance with the procedures contained in the addendum of this Technical Bulletin. This inspection was completed as part of the inspection procedures validation process. Aircraft that successfully passed this inspection with proper documentation in the aircraft records are not required to perform another initial inspection. Update the aircraft records to reflect the recurring requirements noted in this Technical Bulletin.

f. INITIAL AND RECURRING EDDY CURRENT INSPECTION. Complete Eddy Current inspection in accordance with this Technical Bulletin (and Addendum). This inspection is required for initial compliance, except as noted above, and at recurring 100 hour (CH-47) or 150 hour (MH-47) intervals. The recurring Swashplate Rotating Ring Eddy Current inspection may be aligned with the 100 hour (CH-47) or 150 hour (MH-47) swashplate bearing inspection, provided the bearing inspection is performed before the rotating ring inspection.

g. Annotate the DA Form 2048-18 with a 100 hour (CH-47) or 150 hour (MH-47) recurring Eddy Current inspection of the Forward and Aft Swashplate Rotating Ring, in accordance with Addendum to CH-47-05-SOF-01. ULLS-A units will use inspection number A-190 (Insp FWD & AFT Swashplate Rotating Ring), reference is CH-47-SOF-01, and use this Technical Bulletin as authority for changes.

h. Clear the initial entry from paragraph 4. a. upon completion of initial inspection and note compliance on DA Form 2408-5-1 (Swashplate Assy).

8. Procedures/Instructions for Assemblies/Components/Parts In Work or In Stock (at all levels including war reserves) – Annotate the serviceability tag with: “CH-47-05-SOF-01, FWD & AFT Swashplate Rotating Ring, not complied with”. Do not remove original condition tags.

a. Items in Retail Stock – Commanders and Facility Managers that maintain retail stock at installation level and below will complete the following procedures.

- (1) Report Technical Bulletin receipt to Log POC in accordance with paragraph 5.
- (2) Suspend issue of affected items until in compliance with Technical Bulletin requirements.
- (3) Contact the supported aviation unit, as required, to perform the procedures required on affected items.
- (4) Comply with inspection and correction procedures as required to return items to serviceable stock.

(5) Submit a Task/Inspection Report to Log POC in accordance with paragraph 5.

b. Items in Single Stock Fund and in Work (Overhaul/Repair Facility) – Comply with inspection and correction procedures as required to return items to serviceable stock.

(1) Depot, unit and other maintenance activity commanders will ensure items listed in paragraph 3 are not issued until they are in compliance with this Technical Bulletin. The procedures of Depot Maintenance Engineering Order (MEO) number T5054 may be utilized in lieu of the procedures in the Addendum to this Technical Bulletin.

(2) Submit Task/Inspection Compliance Report to Wholesale POC in accordance with paragraph 5.c.

c. Items in Wholesale Stock – Depot storage facilities will complete the following procedures –

- (1) Report Technical Bulletin receipt to Wholesale POC in accordance with paragraph 5.c.
- (2) Suspend issue of affected items until in compliance with Technical Bulletin requirements. Commanders and facility managers will ensure all items in condition codes //A//, //B//, //C//, //D//, and //E//

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that are affected by this Technical Bulletin 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.

(3) Submit DD Form 1225 (Storage Quality Control Report) to the Wholesale POC. Include an estimate of the cost reimbursable funding required to move serviceable items on hand affected by Technical Bulletin to a work area, unpack the materiel, repack the materiel after inspection, and to return the materiel to storage, as appropriate. Report, by original serviceable condition code, the quantity of materiel placed in condition //J//.

(4) Comply with additional instructions provided by the Wholesale POC to return items to their original condition code.

9. Special Tools and Fixtures Required.

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Eddy Current Instrumentor equivalent	9020210	6625-01-515-6713
Reference Standard, Aluminum (0.008 in, 0.020 in and 0.040 in EDM notches)	7075-T6	
Eddy Current Probe Kit	SPCK-217/CH-47	N/A

10. Supply/Parts (Requisition/Disposition).

NOTE

The Program Manager, Cargo Helicopters, in coordination with HQDA-ADCS-G-3, will prioritize units and repair parts distribution.

a. Parts Required – The following parts/components may be required to return aircraft to a serviceable condition:

NOUN	PN/NSN	QTY	COST EA.	TOTAL \$
Swashplate, Aft	145R3551-18/ 1615-01-395-0007	1	\$112,935.00	\$112,935.00
Swashplate, Fwd	145R3551-17/ 1615-01-395-0006	1	\$103,151.00	\$103,151.00

Total Maximum Cost Per Aircraft = 2 Swashplate Assemblies = \$216,086.00

NOTE

The swashplate assemblies listed above contain all of the following individual parts. Units will either replace the assembly or will be required to obtain the individual parts, as required.

NOUN	PN/NSN	QTY	COTS EA.	TOTAL \$
Rotating Ring & Bearing Assembly	CH-47-SOF-SWSP 1615-01-525-4058	2	\$15,546.00	\$31,092.00
Seal	114RS306-6/ 5330-00-999-4077	2	\$355.47	\$710.94
Retainer	114R3417-3/ 5330-01-474-4303	4	\$296.95	\$1,187.80
Ring Assy	114R3490-1/ 1615-01-476-0755	1	\$3,850.62	\$3,850.62
Bolt	BACB30LC6-38/ 5306-01-474-3835	36	\$2.59	\$93.24

Bolt	BACB30FD5H14/ 5306-01-476-1906	36	\$2.91	\$104.76
Nut, Self Locking	FN22M-524/ 5310-01-070-9314	12	\$3.07	\$36.84
Bolt, Shear	MS21134H05004/ 5306-01-108-7462	12	\$2.91	\$34.92
Gasket	114R3428-1/ 5330-00-849-4366	2	\$31.14	\$62.28
Nut, Self Locking	FN22M-428/ 5310-01-184-0356	10	\$1.13	\$11.30
Nut, Self Locking	FN22M-624/ 5310-01-184-0354	36	\$1.56	\$54.72
Retainer, Swashplate	114R3126-4/ 1615-00-181-4127	2	\$1805.25	\$3610.50

Total maximum cost per aircraft = Individual parts (2 sets) = \$40,849.92

b. Bulk and Consumable Materials –

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Grease, WTR	MIL-G-81322	9150-00-145-0268
Cloth, Lint Free,	MIL-C-24671	4470-01-498-8080

c. Requisitioning Instructions – Contact the Log POC in paragraph 13.b. for requisitioning instructions. All requisitions shall use Project Code (CC 57-59) “X2Z” (X-Ray-Two-Zulu).

NOTE

Project Code “X2Z” is required to track and establish a data base of Stock Fund expenditures incurred by the field as a result of Technical Bulletin actions.

d. Disposition of discrepant parts/components – Unit will submit a CAT 1 QDR on any Swashplate Rotating Ring that failed the inspections in accordance with this Technical Bulletin. Hold discrepant parts pending disposition instructions from Technical POC. If instructed to dispose of using normal supply procedures, all turn-in documents must include Project Code (CC 57-59) “X2Z” (X-Ray-Two-Zulu).

e. Disposition of Hazardous Material – In accordance with Environmental Protection Agency directives as implemented by your servicing environmental coordinator (AR 200-1).

11. Maintenance Application.

a. Category of Maintenance – AVIM.

b. Estimated Time Required –

(1) Time to Complete Inspection – Total of 12 man-hours using 4 persons with 3 hours “Not Mission Capable Maintenance” (NMCM) time per end item.

NOTE

The time stated below does not include time for Maintenance Operational Checks or Maintenance Test Flights, if required.

(2) Time for Repair/Replacement – Total of 128 man-hours using 8 persons with 16 hours “Not Mission Capable Maintenance” (NMCM) time per end item.

12. Publication Requirements.

a. References –

- (1) AR 95-1.
- (2) AR 200-1.
- (3) DA PAM 738-751.
- (4) TM 55-1520-240-23, Aviation Unit and Aviation Intermediate Maintenance Manual, CH-47D Helicopter.
- (5) TM 1-1520-252-23, Aviation Unit and Aviation Intermediate Maintenance Manual, MH-47E Helicopter.
- (6) TM 1-1520-240-10, Operator's Manual for CH-47D Helicopters.
- (7) TM 1-1520-271-10, Draft Operator's Manual for CH-47F Helicopters.
- (8) TM 1-1520-252-10, Operator's Manual for MH-47E Helicopters.
- (9) Staveley Eddy Current Operator's Manual, PN 7720064, Dual Eddy Scope Operation Manual, Revision 5, October 2003.

b. Publication Changes – The following publications shall be changed to reflect this Technical Bulletin: TM 55-1520-240-23, TM 1-1520-252-23, TM 1-1520-240-10, TM 1-1520-252-10, TM 1-1520-271-10. A copy of this Technical Bulletin will be used as authority to implement the change until the official change is received.

13. Points of Contact.

a. Technical points of contact are:

(1) Primary – Mr. Neil Sutherland, AMSRD-AMR-AE-C, DSN 897-3382 or (256) 313-3382. Fax is 897-4726 or (256) 313-4726. Email is "neil.sutherland@peoavn.redstone.army.mil".

(2) Alternate – Mr. Tim Rickmeyer, AMSRD-AMR-AE-C, DSN 645-6485, or (256) 955-6485. Fax is 897-4726 or (256) 313-4726. Email is "timothy.rickmeyer@us.army.mil".

b. Non Destructive Test Center of Excellence – Mr. David Nelson, SFAE-AV-AS-AG, DSN 897-0211 or (256) 313-0211. Fax is DSN 897-0200 or (256) 313-0200. Email is "ndt-coe@peoavn.redstone.army.mil".

c. Logistical points of contact are:

(1) Primary – Mr. Bill Olson, SFAE-AV-CH-L, DSN 897-0721 or (256) 313-0721. Fax is DSN 897-4726 or (256) 313-4726. Email is "william.olson@peoavn.redstone.army.mil".

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

d. Wholesale Materiel point of contact (SPARES) is Ms. Sue Endicott, AMSAM-MMC-AV-CA, DSN 897-3364 or (256) 313-3364. Fax is DSN 897-4726. Email is "sue.endicott@us.army.mil".

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

f. 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. Email is "randall.rushing@redstone.army.mil".

(2) Alternate – Mr. Russell Peusch, AMSAM-SF-A, DSN 788-8632 or (256) 842-8632. Fax is DSN 897-2111 or (256) 313-2111. Email is "russell.peusch@redstone.army.mil".

g. 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. Email is "ronnie.sammons@redstone.army.mil".


- h. 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>”
This is a secured website which requires an Army Knowledge Online
(AKO) (“www.us.army.mil”) ID and password.

By Order of the Secretary of the Army:

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Distribution:

To be distributed in accordance with Initial Distribution Number (IDN) 314140, requirements for TB 1-1520-240-20-156.

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.

