

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

**ANNOUNCEMENT OF APPROVAL AND RELEASE OF
NONDESTRUCTIVE TEST EQUIPMENT
INSPECTION PROCEDURE MANUAL
TM 1-1520-265-23, TECHNICAL MANUAL AVIATION UNIT MAINTENANCE
(AVUM) AND AVIATION INTERMEDIATE MAINTENANCE (AVIM) MANUAL
NONDESTRUCTIVE INSPECTION PROCEDURES FOR
H-60 HELICOPTER SERIES**

Headquarters, Department of the Army, Washington, D. C.
1 May 1997

**DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.
NOTE**

THIS PUBLICATION IS EFFECTIVE UNTIL REFERENCES TO TM 1-1520-265-23, TECHNICAL MANUAL AVIATION UNIT MAINTENANCE (AVUM) AND AVIATION INTERMEDIATE MAINTENANCE (AVIM) MANUAL NONDESTRUCTIVE INSPECTION PROCEDURES FOR H-60 HELICOPTER SERIES, HAVE BEEN INCORPORATED INTO THE TM 1-1520-237-23 (SERIES), TECHNICAL MANUAL, AVIATION UNIT AND INTERMEDIATE MAINTENANCE FOR ARMY MODELS UH-60A, UH-60L, AND EH-60A HELICOPTERS.

1. Priority Classification. Routine

2. Purpose. The purpose of this technical bulletin (TB) is to announce the approval and release of the nondestructive test equipment inspection procedure manual, TM 1-1520-265-23, Technical Manual Aviation Unit Maintenance (AVUM) and Aviation Intermediate Maintenance (AVIM) Manual Nondestructive Inspection Procedures for H-60 Helicopter Series. This manual shall be referred to when performing inspections on the H-60 aircraft.

3. Description. Approved nondestructive test inspection procedures are referenced in Table 1. Refer to TM 1-1520-265-23, Technical Manual Aviation Unit Maintenance (AVUM) and Aviation Intermediate Maintenance (AVIM) Manual Nondestructive Inspection Procedures for H-60 Helicopter Series, for safety information, part locations, inspection method descriptions, and complete procedures. Do not attempt to perform any nondestructive test inspection without first referring to TM 1-1520-265-23 as this TB does not provide adequate information to properly perform the inspections.

4. How to Use. The columns in Table 1. Approved Nondestructive Test Inspection Components/Assemblies are defined as follows:

(1) Procedure Number: references the procedure number in TM 1-1520-265-23, Technical Manual Aviation Unit Maintenance (AVUM) and Aviation Intermediate Maintenance (AVIM) Manual Nondestructive Inspection Procedures for H-60 Helicopter Series.

(2) Component/Assembly: provides the list of parts approved for nondestructive test inspections on the H-60 aircraft. Parts not listed have not been approved for nondestructive test inspection and shall be inspected as referenced in TM 1-1520-237-23, Technical Manual, Aviation Unit and Intermediate Maintenance for Army Models UH-60A, UH-60L, and EH-60A Helicopters.

(3) Inspect For: provides the approved manner of inspection. All other types of inspection shall be performed as referenced in TM 1-1520-237-23, Technical Manual, Aviation Unit and Intermediate Maintenance for Army Models UH-60A, UH-60L, and EH-60A Helicopters.

(4) Maintenance Category: details the approved maintenance level for each nondestructive test inspection.

(5) Inspection Equipment Requirements: provides the approved nondestructive inspection method/equipment to perform the inspection. Refer to Notes for the legend.

(6) Remarks: provides the approved backup method/equipment to perform the inspection. Refer to Notes for the legend.

NOTE

Legend for the nondestructive inspection methods/equipment referenced in columns (5) and (6):

001	Fluorescent Penetrant Method	004	Ultrasonic Method
002	Magnetic Particle Method	005	Bond Testing Method
003	Eddy Current Method	006	Radiographic Method

Table 1. Approved Nondestructive Test Inspection Components/Assemblies.

(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY			(5) INSPECTION EQUIPMENT REQUIRE MENTS -	(6) REMARKS
			AVUM	AVIM	DEPOT		
2.2	Split Cones	Cracks		✓		001	
2.3	Ferrous Rotor System Bolts and Pins	Cracks		✓		002	
2.4	Nonferrous Rotor System Bolts and Pins	Cracks		✓		001	
2.5	Main Rotor Shaft Nut	Cracks		✓		002	
2.6	Main Rotor Hub	Cracks		✓		003	Backup 001
2.7	Spindle	Cracks		✓		003	
2.8	Antiflap Bracket	Cracks		✓		003	
2.9	Droop Stop Support Ring Nut	Cracks		✓		003	
2.10	Balance Weight Bracket	Cracks		✓		002	
2.11	Spindle Horn	Cracks		✓		003	Backup 001
2.12	Droop Stop Cam	Cracks		✓		003	
2.13	Damper Assembly	Cracks		✓		003	
2.14	Pitch Control Rods	Cracks		✓		003	Backup 001
2.15	Rotating Swashplate	Cracks		✓		003	Backup 001
2.16	Lower Link	Cracks		✓		003	Backup 001

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(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY			(5) INSPECTION EQUIPMENT REQUIRE MENTS -	(6) REMARKS
			AVUM	AVIM	DEPOT		
2.17	Bifilar Vibration Absorber	Cracks		✓		003	Backup 001
2.18	Bifilar Weight	Cracks		✓		004	
2.19	Main Rotor Blade Tip	Cracks		✓		003	
	Cap Fairing						
2.20	Main Rotor Blade (Voids)	Voids		✓		005	
2.21	Main Rotor Blade Cuff Assembly	Cracks		✓		003	
2.22	Tail Rotor Blade (Voids)	Voids		✓		005	
2.23	Tail Rotor Blade (Fluid)	Fluid		✓		006	
2.24	Tail Rotor Blade Tip Cap	Cracks		✓		003	
2.25	Tail Rotor Pitch Horn	Cracks		✓		003	Backup 001
2.26	Tail Rotor Pitch Control Rod Ends	Cracks		✓		002	
2.27	Pitch Beam Washer	Cracks		✓		002	
2.28	Pitch Beam Retaining Nut	Cracks		✓		002	
2.29	Pitch Beam	Cracks		✓		003	
2.30	Tail Rotor Inboard/Outboard Retention Plates	Cracks		✓		003	
3.2	Main Transmission	Cracks		✓		003	
3.3	Intermediate Gearbox	Cracks		✓		003	Backup 001
3.4	Tail Rotor Drive Shaft	Cracks		✓		003	
3.5	Tail Rotor Drive Shaft Supports	Cracks		✓		003	
3.6	Tail Rotor Drive Shaft Coupling	Cracks		✓		001	
3.7	Oil Cooler Drive Shaft	Cracks		✓		003	
3.8	Oil Cooler Axial Fan Shaft	Cracks		✓		002	
3.9	Oil Cooler Fan (Blades)	Cracks		✓		003	
3.10	Tail Gearbox	Cracks		✓		003	Backup 001
3.11	Tail Gearbox Mount Fitting	Cracks		✓		003	

Table 1. Approved Nondestructive Test Inspection Components/Assemblies.

(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY			(5) INSPECTION EQUIPMENT REQUIRE MENTS -	(6) REMARKS
			AVUM	AVIM	DEPOT		
3.12	Tail Rotor Gearbox In- ner/Outer Split Cones	Cracks		✓		001	
4.2	Airframe Skin, Panels, Doors, Covers, and Fairings - Metal	Cracks		✓		003	
4.3	Honeycomb and Composite Structures	Voids		✓		005	
4.4	Fluid in Honeycomb Core Panels and Structures	Fluid		✓		006	
4.5	Vibration Absorber Springs	Cracks		✓		002	
4.6	Vibration Absorber Structural Fittings	Cracks		✓		003	
4.7	Roll Vibration Absorber	Cracks		✓		001	
4.8	Aluminum Structural Beams and Frames	Cracks		✓		003	
4.9	Pilot/Copilot Seat Midframe Support	Cracks		✓		002	
4.10	Troop/Cargo Door Upper Track	Cracks		✓		003	
4.11	Gunner's Window Lower Track	Cracks		✓		003	
4.12	Gunner's Window Upper Track	Cracks		✓		003	
4.13	Troop/Cargo Door Lower Track	Cracks		✓		003	
4.14	Oil Cooler Compartment Access Door	Cracks		✓		001	
4.15	Tail Pylon Attach Fitting	Cracks		✓		003	
4.16	Tail Rotor Pylon Skin, Station 200	Cracks		✓		003	
4.17	Tail Rotor Pylon Attaching Hardware	Cracks		✓		001	
4.18	Tail Pylon Lower Step	Cracks		✓		003	

Table 1. Approved Nondestructive Test Inspection Components/Assemblies.

(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY			(5) INSPECTION EQUIPMENT REQUIRE MENTS -	(6) REMARKS
			AVUM	AVIM	DEPOT		
4.19	Stabilator Attach Fitting	Cracks		✓		003	Backup 001
4.20	Stabilator Actuator Attach Fittings	Cracks		✓		002	Backup 001
4.21	Stabilator Actuator Housing	Cracks		✓		001	
4.22	Drag Beam Support Fitting	Cracks		✓		003	
4.23	Main Landing Gear Drag Beam	Cracks		✓		002	Backup 001
4.24	Main Landing Gear Shock Strut Upper Cylinder	Cracks		✓		003	
4.25	Main Landing Gear Shock Strut Lower Stage Piston	Cracks		✓		002	
4.26	Main Landing Gear Wheel Assembly	Cracks		✓		003	Backup 001
4.27	Main Landing Gear Brake	Cracks 001		✓		002	Backup
4.28	Main Landing Gear Brake Housing	Cracks		✓		003	Backup 001
4.29	Parking Brake Valve Components	Cracks		✓		001	
4.30	Slave Mixer Valve Parts	Cracks		✓		001	
4.31	Tail Landing Gear Yoke	Cracks		✓		003	Backup 001
4.32	Tail Landing Gear Fork	Cracks		✓		003	Backup 001
4.33	Tail Landing Gear Lock Actuator Assembly	Cracks		✓		002	
4.34	Tail Landing Gear Wheel Assembly	Cracks		✓		003	
4.35	Cargo Hook	Cracks		✓		002	

Table 1. Approved Nondestructive Test Inspection Components/Assemblies.

(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY			(5) INSPECTION EQUIPMENT REQUIRE MENTS -	(6) REMARKS
			AVUM	AVIM	DEPOT		
4.36	Ferrous Bolts and Pins Contained Within the Airframe and Landing Gear System	Cracks		✓		002	
4.37	Nonferrous Bolts and Pins Contained Within the Airframe and Landing Gear System	Cracks		✓		001	
5.2	Deswirl Duct Vanes and Loop Clamp	Cracks		✓		001	
5.3	Engine Tubing, Couplings, Air Ducts, Fittings, Supports, Brackets, and Clips	Cracks		✓		001	
5.4	Air Inlet Assembly and Bleed-Air Exhaust Slots	Cracks		✓		003	
5.5	Aft Engine Mount Struts	Cracks		✓		002	Backup 001
5.6	Aft Engine Mount Fittings	Cracks		✓		002	Backup 001
5.7	Aft Engine Mount Links	Cracks		✓		001	
5.8	Aft Engine Mount Support	Cracks		✓		003	Backup 001
5.9	Crotch Assembly and Segment Ring	Cracks 001		✓		003	Backup
5.10	Forward Support Tube	Cracks		✓		003	Backup 001
5.11	Exhaust Ejector and Attaching Angles	Cracks		✓		001	
5.12	Exhaust Fairings	Cracks		✓		001	
5.13	HIRSS and Nacelle Fairing Support Mounts	Cracks		✓		001	
5.14	Suppressor Core and Baffle	Cracks		✓		001	
5.15	HIRSS Exhaust Extender	Cracks		✓		001	
5.16	Rotary Input Assembly	Cracks		✓		001	

Table 1. Approved Nondestructive Test Inspection Components/Assemblies.

(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY			(5) INSPECTION EQUIPMENT REQUIRE MENTS -	(6) REMARKS
			AVUM	AVIM	DEPOT		
5.17	Engine Load Demand Control Cable Support	Cracks		✓		001	
5.18	Engine Air Inlet "V" Band Clamp	Cracks		✓		001	
5.19	Starter Flange	Cracks		✓		003	
5.20	Engine Shroud	Cracks		✓		001	
5.21	Engine Load Demand Spindle Bellcrank Support	Cracks		✓		003	
5.22	Engine Components	Cracks		✓		001	
6.2	Toe Pedal Actuator	Cracks		✓		001	
6.3	Toe Pedal Assembly	Cracks		✓		003	Backup 001
6.4	Yaw Pedal Support Shaft	Cracks		✓		002	
6.5	Yaw Pedal Brake Cylinder Supports	Cracks		✓		003	
6.6	Pedal Adjuster Arms and Link	Cracks		✓		003	Backup 001
6.7	Pilot/Copilot Cyclic and Collective Stick Socket	Cracks		✓		003	Backup 001
6.8	Collective Boost and Yaw Boost Servo Input/ Output Piston Shafts and Cylinders	Cracks		✓		002	
6.9	Yaw/Pitch Coupling Link	Cracks		✓		003	
6.10	Ferrous Flight Control System Push-Pull Rods	Cracks		✓		002	
6.11	Nonferrous Flight Con- trol System Push-Pull Rods	Cracks		✓		003	
6.12	Pilot Collective Stick Bellcrank Support	Cracks		✓		003	
6.13	Pilot/Copilot Collective Stick Support	Cracks		✓		003	Backup 001

Table 1. Approved Nondestructive Test Inspection Components/Assemblies.

(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY			(5) INSPECTION EQUIPMENT REQUIRE MENTS -	(6) REMARKS
			AVUM	AVIM	DEPOT		
6.14	Pilot Collective Stick Bellcrank	Cracks		✓		003	Backup 001
6.15	Ferrous Connecting Links, Rod Ends, Clevises, Levers, and Attaching Parts	Cracks		✓		002	
6.16	Nonferrous Connecting Links, Rod Ends, Clevises, Levers, and Attaching Parts	Cracks		✓		003	
6.17	Swashplate Links	Cracks		✓		002	
6.18	Walking Beam	Cracks		✓		002	
6.19	Forward Bellcrank	Cracks		✓		002	
6.20	Lateral Bellcrank	Cracks		✓		002	
6.21	Aft Bellcrank	Cracks		✓		002	
6.22	Hydraulic/Pneumatic	Cracks		✓		001	
6.23	System Components Ferrous Bolts Contained Within the Flight Control System	Cracks		✓		002	
6.24	Nonferrous Bolts Con- tained Within the Flight Control System	Cracks		✓		001	

5. Points of Contact.

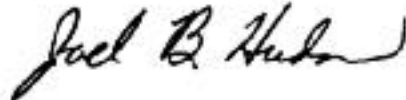
a. Technical point of contact for this TB is Mr. Wayne Suchman, AGSE-PM, AMSAT-D-WAG, DSN 693-1924 or commercial (314)263-1924, e-mail: wsuchman@emh4.wsmd.stl.army.mil.

b. Nondestructive Test Inspection technical point of contact for this TB is Mr. Scott Huddleston, DSN 693-1923 or commercial (314)263-1923, e-mail: shuddles@emh4.wsmd.stl.army.mil.

6. 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.

Official:



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DISTRIBUTION:

To be distributed in accordance with DA Form 12-31-E, block no. 3676, requirements for TB 1-1520-237-23-1.

*U.S. GOVERNMENT PRINTING OFFICE: 1997 - 554-024/60172

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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: mpmt%avma28@st-louis-emh7.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.

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 decigrams = .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 milliliters = .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
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