

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

ANNOUNCEMENT OF APPROVAL AND RELEASE OF NONDESTRUCTIVE TEST EQUIPMENT INSPECTION PROCEDURE MANUAL

TM 1-1520-255-23, TECHNICAL MANUAL AVIATION UNIT MAINTENANCE
(AVUM) AND AVIATION INTERMEDIATE MAINTENANCE (AVIM) MANUAL
NONDESTRUCTIVE INSPECTION PROCEDURES FOR
AH-1 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 1-1520-255-23, TECHNICAL MANUAL AVIATION UNIT MAINTENANCE (AVUM) AND AVIATION INTERMEDIATE MAINTENANCE (AVIM) MANUAL NONDESTRUCTIVE INSPECTION PROCEDURES FOR AH-1 HELICOPTER SERIES, HAVE BEEN INCORPORATED INTO THE TM 55-1520-236-23 (SERIES), AVIATION UNIT AND INTERMEDIATE MAINTENANCE MANUAL FOR HELICOPTER, AH-1.

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 1-1520-255-23, Technical Manual Aviation Unit Maintenance (AVUM) and Aviation Intermediate Maintenance (AVIM) Manual Nondestructive Inspection Procedures for AH-1 Helicopter Series. This manual shall be referred to when performing inspections on the AH-1 aircraft.

3. Description. Approved nondestructive test inspection procedures are referenced in Table 1. Refer to TM 1-1520-255-23, Technical Manual Aviation Unit Maintenance (AVUM) and Aviation Intermediate Maintenance (AVIM) Manual Nondestructive Inspection Procedures for AH-1 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 1-1520-255-23 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:

TB 1-1520-236-23-1

(1) Procedure Number: references the procedure number in TM 1-1520-255-23, Technical Manual Aviation Unit Maintenance (AVUM) and Aviation Intermediate Maintenance (AVIM) Manual Nondestructive Inspection Procedures for AH-1 Helicopter Series.

(2) Component/Assembly: provides the list of parts approved for nondestructive test inspections on the AH-1 aircraft. Parts not listed have not been approved for nondestructive test inspection and shall be inspected as referenced in TM 55-1520-236-23 (Series), Aviation Unit and Intermediate Maintenance Manual for Helicopter, AH-1.

(3) Inspect For: provides the approved manner of inspection. All other types of inspection shall be performed as referenced in TM 55-1520-236-23 (Series), Aviation Unit and Intermediate Maintenance Manual for Helicopter, AH-1.

(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 Component Assemblies

(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY			(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
			AVUM	AVIM	DEPOT		
2.2	Main Rotor Blade, K747 Root Fitting	Cracks		✓		002	
2.3	Main Rotor Blade, K747 Drag Strut	Cracks		✓		003	
2.4	Main Rotor Blade, K747	Voids		✓		005	
2.5	Main Rotor Hub Yoke	Cracks		✓		002	
2.6	Main Rotor Hub Grip	Cracks		✓		002	
2.7	Main Rotor Hub Pitch Horn	Cracks		✓		003	
2.8	Main Rotor Hub Yoke Extension	Cracks		✓		002	
2.9	Retention Strap Fitting	Cracks		✓		002	
2.10	Drag Brace Assembly	Cracks		✓		002	
2.11	Hub Moment Spring Plate	Cracks		✓		002	
2.12	Hub Moment Spring Strap	Cracks		✓		002	
2.13	Elastomeric Bearing Housing	Cracks		✓		002	
2.14	Pitch Link Assembly	Cracks		✓		003	Backup 001
2.15	Main Rotor Control Spline Plate	Cracks		✓		001	
2.16	Collet Clamp Assembly	Cracks		✓		002	
2.17	Collective Lever	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 REQUIREMENTS	(6) REMARKS
			AVUM	AVIM	DEPOT		
2.18	Collective Lever Idler Link	Cracks		✓		002	
2.19	Swashplate Antidrive Link	Cracks		✓		003	Backup 001
2.20	Swashplate Antidrive Assembly Bellcrank	Cracks		✓		003	Backup 001
2.21	Swashplate Antidrive Assembly Support	Cracks		✓		003	Backup 001
2.22	Hub Moment Spring support set	Cracks		✓		002	
2.23	Hub Moment Spring	Cracks		✓		002	
2.24	Friction Collet Set	Cracks		✓		002	
2.25	Hub Assembly (Scissors and Sleeve Assembly)	Cracks		✓		002	
2.26	Collective Sleeve (Scissors and Sleeve Assembly)	Cracks		✓		002	
2.27	Scissors Assembly (Scissors and Sleeve Assembly)	Cracks		✓		003	Backup 001
2.28	Main Rotor Control Drive Link Assembly	Cracks		✓		003	Backup 001
2.29	Tail Rotor Hub Yoke Assembly	Cracks		✓		002	Backup 001
2.30	Tail Rotor Hub Trunnion set	Cracks		✓		002	Backup 001
2.31	Tail Rotor Control Crosshead	Cracks		✓		002	Backup 001
2.32	Tail Rotor Control Counterweight Bellcrank	Cracks		✓		002	Backup 001
2.33	Tail Rotor Control Pitch Link Rod End	Cracks		✓		002	
2.34	Tail Rotor Control Counterweight Link	Cracks		✓		003	Backup 001
2.35	Tail Rotor Active Counterweight Support	Cracks		✓		002	Backup 001
2.36	Tail Rotor Control Tube Assembly	Cracks		✓		002	Backup 001
2.37	Tail Rotor Control Link Assembly	Cracks		✓		002	Backup 001
2.38	Tail Rotor Control Idler Assembly	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 REQUIREMENTS	(6) REMARKS
			AVUM	AVIM	DEPOT		
2.39	Tail Rotor Control Lever Assembly	Cracks		✓		003	Backup 001
2.40	Tail Rotor Retention Nut	Cracks		✓		002	Backup 001
2.41	Tail Rotor Blade	Voids		✓		005	
2.42	Tail Rotor Blade	Cracks		✓		003	
2.43	Tail Rotor Blade	Water		✓		006	
2.44	Tail Rotor Blade Pitch Horn	Cracks		✓		003	Backup 001
3.2	Main Driveshaft Adapter	Cracks		✓		002	
3.3	Main Transmission Cases	Cracks		✓		003	
3.4	Main Transmission Ring Gear Case	Cracks		✓		002	
3.5	Pylon Lift Link	Cracks		✓		002	
3.6	Transmission Lift Link Attaching Point	Cracks		✓		003	
3.7	Free Wheeling Clutch Assembly Adapter	Cracks		✓		002	
3.8	Drive Quill Assemblies	Cracks		✓		002	
3.9	Main Rotor Mast	Cracks		✓		002	
3.10	Main Rotor Mast Bearing Retaining Plate	Cracks		✓		003	
3.11	Tail Rotor Driveshaft	Cracks		✓		003	Backup 001
3.12	Intermediate Gearbox Case	Cracks		✓		003	
3.13	Tail Rotor Drive Gearbox Case	Cracks		✓		003	
4.2	Forward Fuselage Assembly	Cracks		✓		003	
4.3	Honeycomb Cores and Panels	Voids		✓		005	

Table 1. Approved Nondestructive Test Inspection Components/Assemblies.

(1) PROCEDURE NUMBER	(2) COMPONENT/ASSEMBLY	(3) INSPECT FOR	(4) MAINTENANCE CATEGORY			(5) INSPECTION EQUIPMENT REQUIREMENTS	(6) REMARKS
			AVUM	AVIM	DEPOT		
4.4	Honeycomb Core Fuselage Panels, Vertical Fin, Etc.	Fluid		✓		006	
4.5	Suppressor Cowling Mount Rod End	Cracks		✓		002	
4.6	Suppressor Cowling Mount Rod End Clevis Pin	Cracks		✓		002	
4.7	Tailboom Assembly	Cracks		✓		003	
4.8	Tailboom Stringers	Cracks		✓		003	
4.9	Pilot Seat Upper Guide Fitting	Cracks		✓		003	Backup 001
4.10	Pilot Seat Lower Guide Fitting	Cracks		✓		003	Backup 001
4.11	Pilot Seat Handle Assembly	Cracks		✓		002	
4.12	Pilot Seat Support Tubes	Cracks		✓		002	
4.13	Pilot Seat Latch Spring	Cracks		✓		002	
4.14	Pilot Seat Return Spring	Cracks		✓		002	
4.15	Pilot Seat Latch Pin	Cracks		✓		002	
4.16	Engine Mount Assemblies	Cracks		✓		002	
4.17	Engine Mount Fittings	Cracks		✓		002	
4.18	Pillow Block	Cracks		✓		002	
4.19	Jack Fittings	Cracks		✓		002	Backup 001
4.20	Tow Rings	Cracks		✓		002	Backup 001
4.21	Bolts, Rod Ends, Turnbuckles, Rods, and Pins	Cracks		✓		002	
4.22	Fore and Aft Cross Tube Assemblies	Cracks		✓		004	
4.23	Skid Saddles	Cracks		✓		003	Backup 001
5.2	Forward Engine Mount Fittings (Trunnions)	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 REQUIREMENTS	(6) REMARKS
			AVUM	AVIM	DEPOT		
5.3	Aft Engine Mount Fittings (Trunnions)	Cracks		✓		002	
5.4	Powerplant Related Components	Cracks		✓		001	
5.5	Compressor Rotor Assembly First-Stage Blades	Cracks		✓		002	
5.6	Diffuser Housing Vane Brazements	Cracks		✓		001	
5.7	Air Outlet Assembly	Cracks		✓		001	
5.8	Interstage Bleed Band to Bushing Weld	Cracks		✓		001	
5.9	Combustion Chamber Deflector	Cracks		✓		001	
5.10	Combustion Chamber Bracket and Clamp Assembly	Cracks		✓		001	
5.11	Second-Stage Gas Producer Nozzle and Cylinder Assembly	Cracks		✓		001	
5.12	Diffuser Housing First- Stage Nozzle Assembly, Nozzle Liner	Cracks		✓		001	
5.13	Silver Braze (Engines)	Cracks		✓		001	
6.2	Pilot Collective Control Stick Assembly	Cracks		✓		003	
6.3	Pilot Collective Control Stick Tube	Cracks		✓		002	
6.4	Gunner Collective Control Stick Assembly	Cracks		✓		003	
6.5	Gunner Collective Control Stick	Cracks		✓		002	
6.6	Pilot Cyclic Control Stick Lever Assembly	Cracks		✓		003	
6.7	Pilot Cyclic Control Stick Gimbal Bracket	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 REQUIREMENTS	(6) REMARKS
			AVUM	AVIM	DEPOT		
6.8	Pilot Cyclic Control Stick (Elbow, Collar)	Cracks		✓		003	
6.9	Pilot Cyclic Control Stick	Cracks		✓		002	
6.10	Gunner Cyclic Control Stick Bellcrank Assembly	Cracks		✓		003	
6.11	Gunner Cyclic Control Stick Support Assembly	Cracks		✓		003	
6.12	Gunner Cyclic Control Stick	Cracks		✓		003	
6.13	Jackshaft Assembly	Cracks		✓		003	
6.14	Jackshaft Bearing Support Assembly	Cracks		✓		003	
6.15	Jackshaft Support Assembly	Cracks		✓		003	
6.16	Force Gradient Cyclic Control Cylinder	Cracks		✓		003	
6.17	Force Gradient Cyclic Control Shaft	Cracks		✓		002	
6.18	Force Gradient Cyclic Control Guides	Cracks		✓		001	
6.19	Elevator Horn Assembly	Cracks		✓		003	
6.20	Tail Rotor Control, Elevator and Elevator Control, Power Cylinder Supports, Lateral Cyclic, Fore and Aft Cyclic, and Collective Systems	Cracks		✓		003	
6.21	Rod Ends, Clevis, and Eye Bolts, Etc.	Cracks		✓		001	
6.22	Hydraulic Reservoir	Cracks		✓		003	
6.23	Hydraulic Pump, Transmission Drive	Cracks		✓		003	
6.24	Hydraulic Pump (Emergency-Electric Motor Driven)	Cracks		✓		003	
6.25	Hydraulic Modular Units	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 REQUIREMENTS	(6) REMARKS
			AVUM	AVIM	DEPOT		
6.26	Hydraulic Accumulator and Lock Out Valve Assemblies	Cracks		✓		003	
6.27	Nuts, Fittings, Locks, Springs, Spring Base, Jam Nut, and Barrels	Cracks		✓		001	
6.28	Dual Hydraulic Cylinders Flange Area	Cracks		✓		003	
6.29	Rod Ends, Shafts, Pistons, and Sleeves	Cracks		✓		002	
6.30	Hydraulic Cylinder Bearing Housing	Cracks		✓		003	
6.31	Solenoid Valves	Cracks		✓		003	

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.wsmc.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.wsmc.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 2026 (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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Secretary of the Army
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DENNIS J. REIMER
General, United States Army
Chief of Staff

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7. **Date Sent:** 19-OCT-93
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9. **Pub Title:** T M
10. **Publication Date:** 04-JUL-85
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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
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 TM 1-1520-250-10

PUBLICATION DATE
 15 June 1992

PUBLICATION TITLE
 Operator's manual MH60K Helicopter

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PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO
6	2-1 a		
B1		4-3	

In line 6 of paragraph 2-1a the manual states the engine has 6 cylinders. The engine on my set only has 4 cylinders. Change the manual to show 4 cylinders.

Callout 16 in figure 4-3 is pointed to a bolt. In key to figure 4-3, item 16 is called a shim. Please correct one or the other.

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