

TECHNICAL MANUAL

**AVIATION UNIT AND INTERMEDIATE
MAINTENANCE INSTRUCTIONS
ARMY MODEL UH-1H/V/EH-1H/X**

This manual supersedes TM 55-1520-210-23-3, 20 February 1979, including all changes.

**HEADQUARTERS, DEPARTMENT OF THE ARMY
30 SEPTEMBER 1987**

**AVIATION AND INTERMEDIATE
MAINTENANCE INSTRUCTIONS
ARMY MODEL UH-1H/1H-1HIX HELICOPTER**

REPORTING OF ERRORS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 20282 located in the back of this manual directly to: Commander, U.S. Army Aviation and Troop Command, ATTN: AMSATIMP, 4300 Goodfellow Blvd., St. Louis, MO 631201798. A reply will be furnished to you. You may also submit your recommended changes by Email directly to <mpmtP/avma28@stlouisemh7.army.mil>. A reply will be furnished to you.

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TABLE OF CONTENTS

		Page
CHAPTER 1	INTRODUCTION	
Section I	Servicing.....	1-1
Section II	Lubrication.....	140
Section III	Handling, Jacking, Mooring, Hoisting, and Sling Loading	1-54
Section IV	Inspection Requirements	146
Section V	Overhaul and Retirement Schedule	1-110
Section VI	Flight Safety Critical Aircraft Parts.....	1-115
CHAPTER 2	AIRFRAME	
Section I	Fuselage.....	2-1
Section II	Tailboom.....	2-193
CHAPTER 3	ALIGHTING GEAR	
Section I	Landing Gear.....	3-1
Section II	Skids/Struts	3-30
Section III	Floats.....	3-30
Section IV	Skis.....	3-30
Section V	Brakes	3-30
CHAPTER 4	POWER PLANT	
Section I	Power Plant.....	4-1
Section II	Cooling System	4-13
Section II	Air Induction System	4-13
Section IV	Exhaust System	4-42.7
Section V	Oil System	4-44
Section VI	Ignition System.....	4-41
Section VII	Power Controls.....	4-61
Section VIII	Quick Change Assembly (AVIM).....	4-86

TABLE OF CONTENTS (Cont)

	Page
CHAPTER 5. ROTORS	
Section I. Main Rotor System	5-1
II. Main Rotor Hub	5-16
III. Main Rotor Blades	5-38.1
IV. Main Rotor Controls	5-54.45
V. Tall Rotor System	5-105
VI. Tall Rotor Hub and Blade Assembly	5-107
VII. Tall Rotor Hub and Controls.	5-119
VIII. Tall Rotor Blades	5-132
IX. Tracking Procedures	5-138
CHAPTER 6. DRIVE TRAIN SYSTEM	
Section I. Main Driveshaft	6-1
II. Clutch	6-29
III. Main Transmission	6-29
IV. Tall Rotor Driveshaft	6-116.2
V. intermediate Gearbox	6-138
VI. Tall Rotor Gearbox	6-147
VII. Oil Systems	6-167
CHAPTER 7. HYDRAULIC AND PNEUMATIC SYSTEMS	
Section I. Hydraulic System	7-1
II. Pneumatic System (Not Applicable)	7-51
CHAPTER 8. INSTRUMENT SYSTEMS	
Section I. Instrument Maintenance	8-1
II. Engine instruments	8-2
III. Flight Instruments	8-22
IV. Navigation Instruments	8-33
V. Miscellaneous Instruments	8-37
VI. Instrument Panels	8-51
CHAPTER 9. ELECTRICAL SYSTEMS	
Section I. Direct Current Power Distribution System	9-1
II. Alternating Current Power Distribution System	9-41
III. Starting System	9-52
IV. Ignition System	9-54
V. Lighting Provisions	9-56
VI. Miscellaneous Equipment.	9-94
CHAPTER 10. FUEL SYSTEM	
Section I. Fuel Cells	10-1
II. Fuel Systems	10-11
CHAPTER 11. FLIGHT CONTROLS	
Section I. Controls Surfaces	11-1
II. Flight Control Components	11-1

TABLE OF CONTENTS (Cont)

CHAPTER 12	UTILITY SYSTEMS	
Section I	Fire Detector System	12-1
II	Windshield Wiper System.	12-5
III	Rear View Mirror	12-20
CHAPTER 13	ENVIRONMENTAL CONTROL SYSTEM	
Section I	Heating System.	13-1
II	Air Cooling System	13-15
III	Winterization Equipment.	13-18
CHAPTER 14	HOIST AND WINCHES	
Section I	Personnel Rescue Hoist.	14-1
II	Cargo Suspension Assembly.	14-76
CHAPTER 15	AUXILLIARY POWER PLANTS	
	(Not Applicable)	15-1
CHAPTER 16	MISSION EQUIPMENT.	16-1
CHAPTER 17	EMERGENCY EQUIPMENT.	17-1
APPENDIX A	REFERENCE.	A-1
APPENDIX B	MAINTENANCE ALLOCATION CHART	
Section I	Three Levels of Maintenance Concept.	B-1
II	Maintenance Allocation Chart	B-6
III	Tools and Test Equipment.	B-76
APPENDIX C	AIRCRAFT INVENTORY MASTER GUIDE	C-1
APPENDIX D	ILLUSTRATED FIELD MANUFACTURE ITEMS LIST	D-1
APPENDIX E	STORAGE OF AIRCRAFT	
Section I	General Information	E-1
II	Flyable Storage.	E-2
III	Short Term Storage.	E-3
IV	Intermediate Storage	E-10
APPENDIX F	WIRING DIAGRAMS.	F-1
INDEX		Index 1

APPENDIX B

MAINTENANCE ALLOCATION CHART

SECTION I. THREE LEVELS OF MAINTENANCE CONCEPT

INTRODUCTION

B-1. MAINTENANCE ALLOCATION CHART.

a. This Maintenance Allocation Chart (MAC) assigns maintenance functions in accordance with the Three Levels of Maintenance concept for army aircraft. These maintenance levels, Aviation Unit Maintenance (AVUM); Aviation Intermediate Maintenance (AVIM) and Depot Maintenance are depicted on the MAC as:

AVUM which corresponds to the O Code in the RPSTL.

AVIM which corresponds to an F Code in the RPSTL.

DEPOT which corresponds to a D Code in the RPSTL

b. The maintenance to be performed below depot and in the field as described as follows:

(1) Aviation Unit Maintenance (AVUM) activities will be staffed and equipped to perform high frequency "On-Aircraft" maintenance tasks required to retain or return aircraft to a serviceable condition. The maintenance capability of the AVUM will be governed by the Maintenance Allocation Chart (MAC) and limited by the amount and complexity of ground support equipment (GSE), facilities required, and number of spaces and critical skills available. The range and quantity of authorized spare modules/components will be consistent with the mobility requirements dictated by the air mobility concept. (Assignments of maintenance tasks to divisional company size aviation units will consider the overall maintenance capability of the division, the requirement to

conserve personnel and equipment resources and air mobility requirements.)

(a) Company Size Aviation Units: Perform those tasks which consist primarily of preventive maintenance and maintenance repair and replacement functions associated with sustaining a high level of aircraft operational readiness. Perform maintenance inspections and servicing to include preflight, daily, intermediate, periodic and special inspections as authorized by the MAC or higher headquarters. Identify the cause of equipment/system malfunctions using applicable technical manual troubleshooting instructions, built-in-test equipment (BITE), installed aircraft instruments, or easy to use/interpret diagnostic/fault isolation devices (TMDE). Replace worn or damaged modules/components which do not require complex adjustments or system alignment and which can be removed/installed with available skills, tools and equipment. Perform operational and continuity checks and make minor repairs to the electrical system. Inspect, service and make operational, capacity and pressure checks to hydraulic systems. Perform servicing, functional adjustments, and minor repair/replacement to the flight control, propulsion, power train and fuel systems. Accomplish air frame repair which does not require extensive disassembly, jiggling, or alignment. The manufacture of air frame parts will be limited to those items which can be fabricated with tools and equipment found in current air mobile tool and shop sets. Evacuate unserviceable modules/components and end items beyond the repair capability of AVUM to the supporting AVIM.

(b) Less than Company Size Aviation Units: Aviation elements organic to brigade, group, battalion headquarters and detachment size units

are normally small and have less than ten aircraft assigned. Maintenance tasks performed by these units will be those which can be accomplished by the aircraft crew chief or assigned aircraft repairman and will normally be limited to preventive maintenance, inspections, servicing, spot painting, stop drilling, application of nonstress patches, minor adjustments, module/component fault diagnosis and replacement of selected modules/components. Repair functions will normally be accomplished by the supporting AVIM unit.

(2) Aviation Intermediate Maintenance (AVIM) provides mobile, responsive "One Stop" maintenance support. (Maintenance functions which are not conducive to sustaining air mobility will be assigned to depot maintenance). Performs all maintenance functions authorized to be done at AVUM. Repair of equipment for return to user will emphasize support or operational readiness requirements. Authorized maintenance includes replacement and repair of modules/components and end items which can be accomplished efficiently with available skills, tools, and equipment. Established the Direct Exchange (DX) program for AVUM units by repairing selected items for return to stock when such repairs cannot be accomplished at the AVUM level. Inspects, troubleshoots, tests, diagnoses, repairs, adjusts, calibrates, and aligns aircraft system modules/components. AVIM units will have the capability to determine the serviceability of specified modules/components removed prior to the expiration of the Time Between Overhaul (TBO) or finite life. Module/component disassembly and repair will support the DX program and will normally be limited to tasks requiring cleaning and the replacement of seals, fittings and items of common hardware. Air frame repair and fabrication of parts will be limited to those maintenance tasks which can be performed with available tools and test equipment. Unserviceable repairable modules/components and end items which are beyond the capability of AVIM to repair will be evacuated to Depot Maintenance. This level will perform aircraft weight and balance inspections and other special inspections which exceed AVUM capability. Provides quick response maintenance support, including aircraft recovery and air evacuation, on-the-job training, and technical assistance through the use of mobile maintenance contact teams. Maintains authorized operational readiness float aircraft. Provides

collection and classification services for serviceable/unserviceable material. Operates a cannibalization activity in accordance with AR 750-50. (The aircraft maintenance company within the maintenance battalion of a division will perform AVIM functions consistent with air mobility requirements and conservation of personnel and equipment resources. Additional intermediate maintenance support will be provided by the supporting nondivisional AVIM unit.)

B-2. USE OF THE MAINTENANCE ALLOCATION CHART.

a. The Maintenance Allocation chart assigns maintenance functions to the lowest level of maintenance based on past experience and the following consideration:

(1) Skills available.

(2) Time required.

(3) Tools and test equipment required and/or available.

b. Only the lowest level of maintenance authorized to perform a maintenance function is indicated.

c. A maintenance function assigned to a maintenance level will automatically be authorized to be performed at any higher maintenance level.

d. A maintenance function that cannot be performed at the assigned level of maintenance for any reason may be evacuated to the next higher maintenance organization. Higher maintenance levels will perform the maintenance functions of lower maintenance levels when required or directed by the appropriate commander.

e. The assignment of a maintenance function will not be construed as authority to carry the associated repair parts in stock. Authority to requisition, stock, or otherwise secure necessary repair parts will be as specified in the repair parts appendix.

f. Normally there will be no divation from the assigned level of maintenance. In cases of operational necessity, maintenance functions assigned to a higher maintenance level may, at the request of the lower maintenance level, be

specifically authorized by the maintenance officer of the level of maintenance to which the function is assigned. The special tools, equipment, etc. required by the lower level of maintenance to perform this function will be furnished by the maintenance level to which the function is assigned. This transfer of a maintenance function to a lower maintenance level does not relieve the higher maintenance level of the responsibility of the function. The higher level of maintenance has the authority to determine:

(1) If the lower level is capable of performing the work.

(2) If the lower level will require assistance or technical supervision and on-site inspection.

(3) If the authorization will be granted to perform maintenance.

g. Organizational through depot maintenance of the U.S. Army Electronics Command equipment will be performed by designated U.S. Army Electronics Command personnel.

h. Changes to the Maintenance Allocation Chart will be based on continuing evaluation and analysis by responsible technical personnel and on reports received from field activities.

B-3. DEFINITIONS.

Maintenance functions. Maintenance functions will be limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical and/or electrical characteristics with established standards through examination.

b. Test. To verify serviceability and detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition, i.e. to clean (decontaminate), to preserve, to drain, to paint, or to replenish fuel, lubricants, hydraulic fluids, or compressed air supplies.

d. Adjust. To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.

e. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Install. The act of emplacing, seating, or fixing into position an item, part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. Replace. The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.

i. Repair. The application of maintenance services or other maintenance action to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. Overhaul. That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (i.e. DMWR) in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc.) considered in classifying Army equipments/components.

B-4. STANDARD GROUPS.

The standard groupings shown below are used, as applicable, throughout this MAC Maintenance manuals and RPSTLs reflect these standard

groupings as individual chapters with sections in each chapter relative to the individual complete systems, subsystems, modules, components, assemblies, or specific parts noted.

AIRFRAME ITEMS

GROUP NUMBER DESCRIPTION	GROUP NUMBER DESCRIPTION
00 Aircraft System	06 Drive Train Systems
01 Aircraft General	Transmissions, gearboxes, clutches, shafting, oil systems, bearings, hangers, oil tanks, and freewheeling units.
Servicing, handling, inspection requirements, lubrication requirements, overhaul and retirement requirements, cleaning, mooring, towing, jacking, hoisting, preservation requirements, weight and balance requirements, spot painting, complete painting, and subassembly painting requirements.	07 Hydraulic and Pneumatic Systems
02 Airframe	Pumps, filters, reservoirs, cylinders, valves, servos, motors, starters and accumulators.
Fuselage, empennage, pylons, wings, mounts (engine and transmission), armor, seats, ramps, decks, and tiedowns.	08 Instrument Systems
03 Alighting Gear	Flight instruments, navigation instruments, engine instruments, miscellaneous instruments (i. e., clocks), sending units, panels, and flow meters.
Landing gear, skids, floats, skis, struts, wheel brakes, and mechanical mechanisms.	09 Electrical Systems
04 Power Plant Installation	Motors, actuators, regulators, generators, starters, batteries, lighting, caution and warning lights, inverters, fault isolation systems, rotor brakes, and avionics provisions.
Removal, installation, cooling systems, air induction, exhaust, oil systems, components, ignition systems, power control, harnesses, carburetors, fuel controls, pumps (engine driven), filters/particle separators, and Quick Change Assemblies (QCA). (See Power Plant Items, figure 2, for more detailed functions.)	10 Fuel Systems
05 Propellers/Rotors Systems	Tanks, cells, filters, pumps, valves, auxiliary fuel systems, and refueling systems.
Propellers, governors, rotors (main and tail), hubs, blades, dampeners, stabilizer bars, swashplates, hub moment springs, and support assemblies.	11 Flight Controls System
	Control sticks, pedals, cables, pulleys, push-pull rods, torque tubes, quadrants, force gradients, control surfaces, bellcranks, and trim actuators (mechanical).

GROUP NUMBER	DESCRIPTION	GROUP NUMBER	DESCRIPTION
12	Utility System. Fire detecting/extinguishing systems, oxygen systems, windshield wiper systems, mirrors, and de-ice/anti-ice systems.	16	Mission Equipment Spraying equipment, stores, racks, armament, reconnaissance, photography, pods, and litters.
13	Environmental Control Systems (ECS) Heaters, air conditioners, defrosters, control mixing valves, and ducts.	17	Emergency Equipment Ejection seats, canopies, jettison system, portable fire extinguishers, axes, and first aid kits.
14	Hoists and Winches Cargo/rescue hoists, winches, hooks, slings, loading systems, and emergency release systems.	18	Installed Avionics Components Communications and Navigational Black Boxes.
15	Auxiliary Power Plants (APP) Fuel, exhaust, and ducting.		

B-5. SYMBOLS.

The letters "AVUM, AVIM AND DEPOT" as placed on the Maintenance Allocation Chart indicate the level of Maintenance responsible for performing the particular maintenance function based upon assigned skills, tools and test equipment and time required to accomplish maintenance.

B-6. WORK TIMES.

The symbol -o- identifies the level of Maintenance authorized to perform a maintenance function and indicates that work time figures are being developed and will be entered at a later date. When developed, this time will appear: for example, as 0.1 and also indicates the level of authorized maintenance.

B-7. TOOLS AND TEST EQUIPMENT/ (SECTION III).

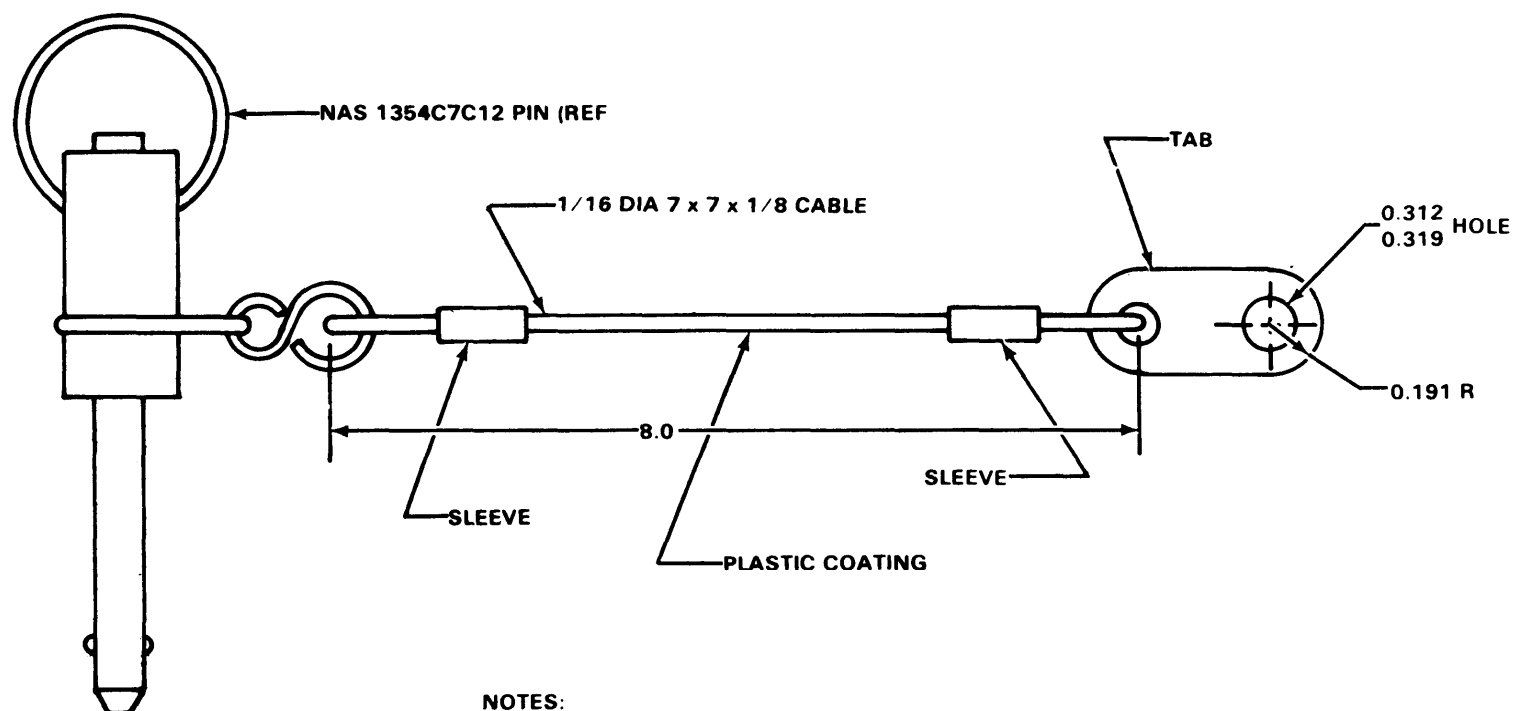
Special tools, test, and support equipment required to do maintenance functions are listed with a reference number to permit cross-referencing to column 5 in the MAC. In addition, the maintenance category authorized to use the device is listed along with the item National Stock Number and if applicable, the number to aid in identifying the tool/device.

B-8. REMARKS (SECTION IV).

Column 6 of the MAC contains alphabetic reference codes which are explained in Section IV of this appendix.

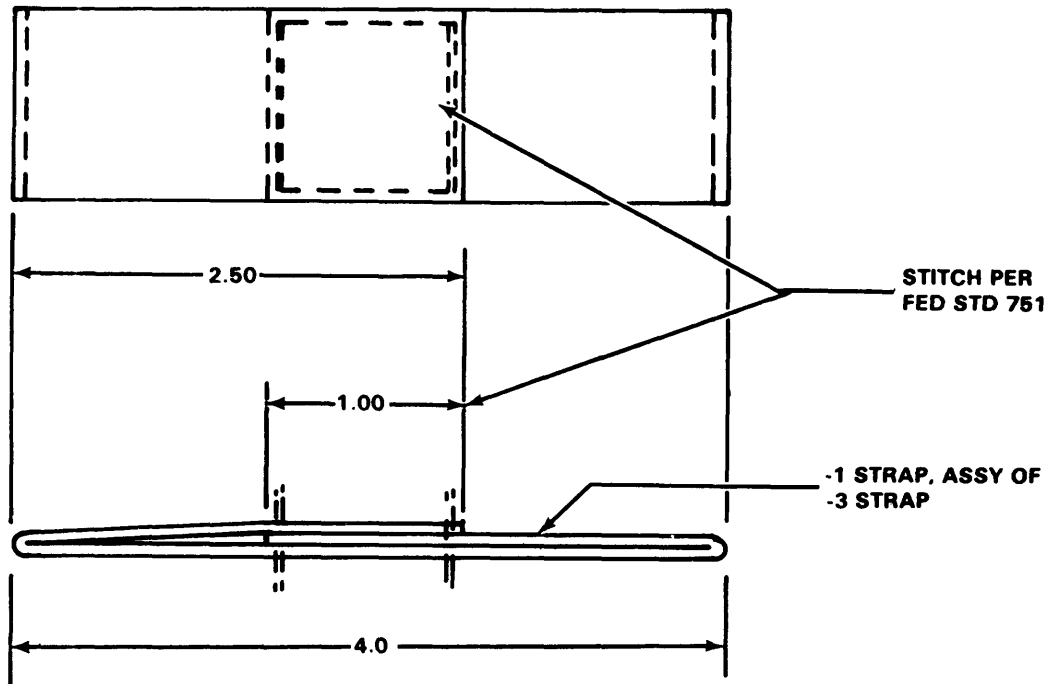
SECTION II. MAINTENANCE ALLOCATION CHART

MAINTENANCE ALLOCATION CHART							
NOMENCLATURE OF END ITEMS							
HELICOPTER UTILITY - TACTICAL TRANSPORT UH-1H/UH-1V/EH-1H							
(1)	(2)	(3)	(4)			(5)	(6)
GROUP			MAINTENANCE CATEGORY			TOOLS AND EQUIPMENT	
NUMBER	COMPONENT/ASSEMBLY	MAINTENANCE FUNCTION	AVUM	AVIM	DEPOT		REMARKS
NOTE							
The extent of maintenance to be performed by AVUM as indicated in this MAC is governed by the size of the Unit and the Tools authorized (Refer to paragraph B-1 b(1) a. and b.). Specific notes are given to further Identify or describe the extent or limit of maintenance to be performed.							
0100	Aircraft General						
0101	Clean		— ● —				
0102	Moor		— ● —				
0103	Tow		— ● —			100	
0104,	Jack		— ● —			100,102	
0105	Hoist		— ● —				
0106	Preservation		— ● —			100,102	
0107	Weight & Balance			— ● —		102,118 121	
0108	Spot Paint		— ● —			100	
0109	Complete Painting				— ● —		
0110	Sub-Assembly Painting			— ● —		118	
0110	Servicing		— ● —			100,102	
0200	Airframe	Inspect	— ● —				
		Repair	— ● —			100,102 103	A
				— ● —		117,120, 118	
		Overhaul			— ● —		

**NOTES:**

1. CABLE: CORROSION RESISTANT PER MIL-W-5424
2. COATING: PLASTIC PER MIL-I-631, TYPE F, GRADE A CLASS II, CAT. I
3. SLEEVE: COPPER, ZINC PLATED 2 REQD.
4. TAB: 2024 AL ALY, FEDERAL SPECIFICATION QQ-A-250 T4, 0.040, NSN 9535-00-086-9930, ANODIZED PER MIL-A-8625, TYPE 1
5. LANYARD MAY BE MADE FROM LW-1023-1-8 PURCHASED FROM HARTWELL CORP, LOS ANGELES, CALIF CODE IDENT NO. 83014

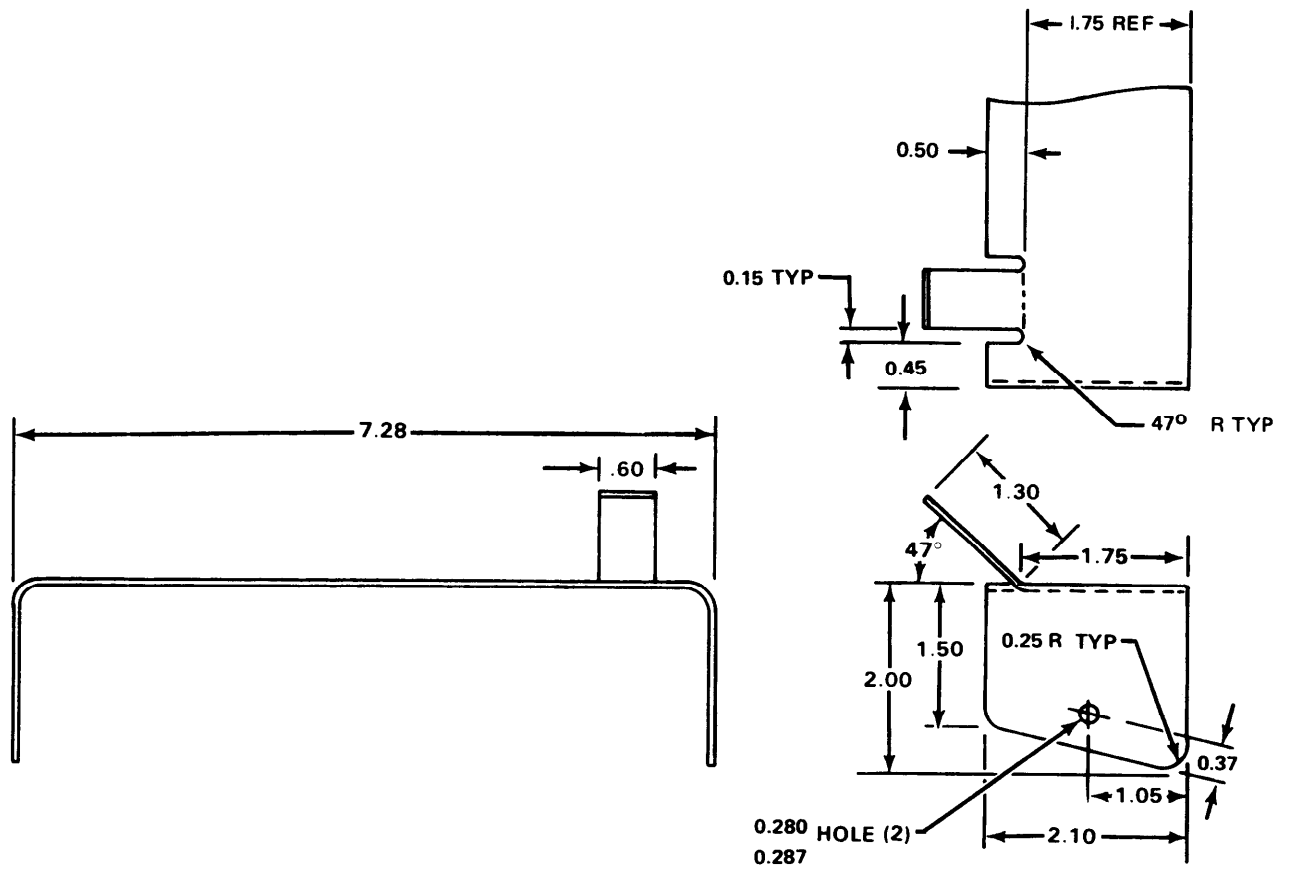
Figure D-278. Part Number 206-072-221-3 LANYARD
 Fabricate from: NSN 4010-00-075-7941
 Material:



NOTES:

1. 205-070-772-3 STRAP MAKE FROM
TYPE XVII X 10.5 NYLON WEBBING
MIL-W-4088-COLOR LIGHT GULL
GREY NO. 36440 FED STD 595
2. NYLON THREAD MIL-T-7808
3. HEAT SEAR ENDS OF ALL WEBBING

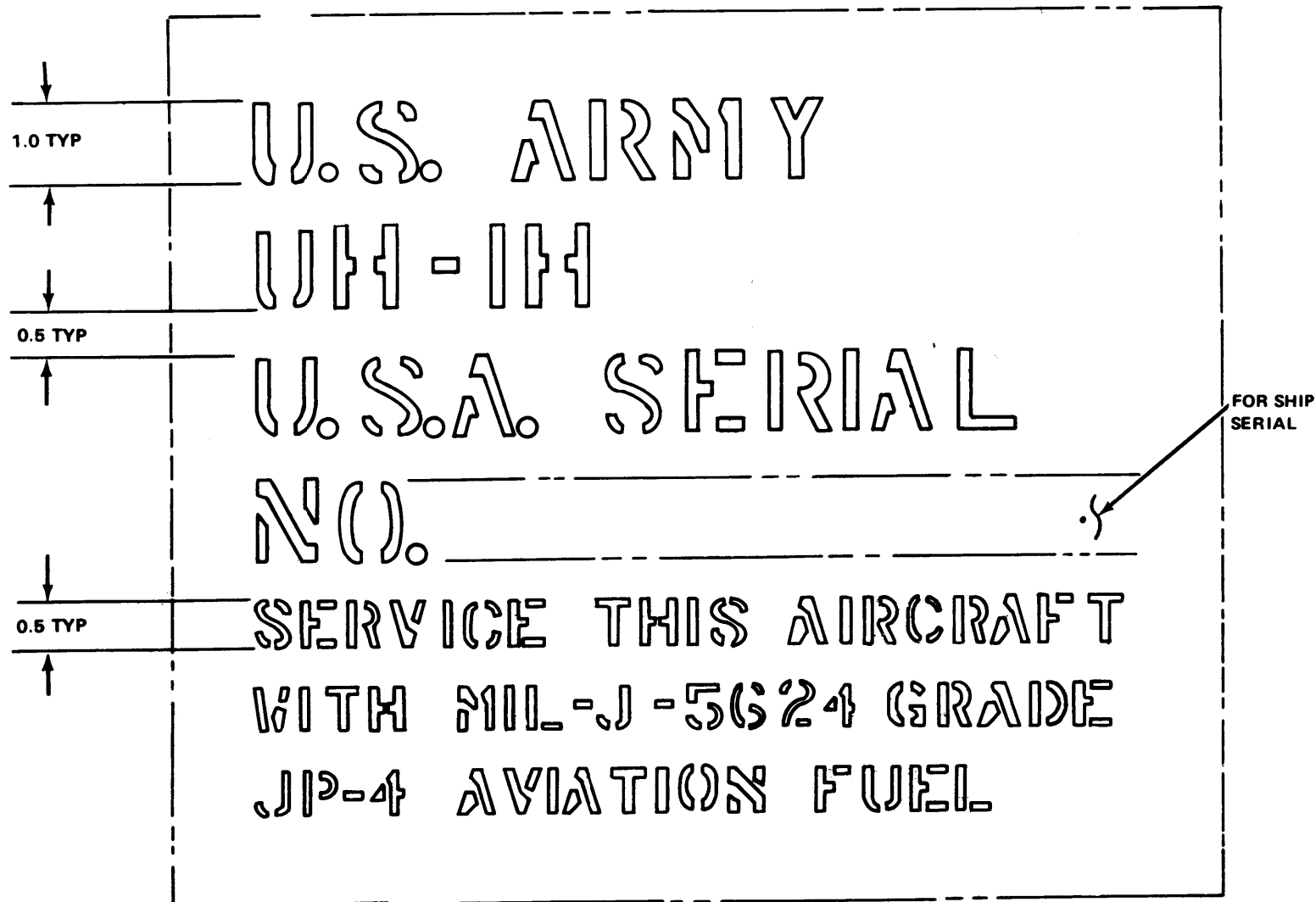
Figure D-279.	Part Number	205-070-772-1 STRAP, Assembly
	Fabricate from:	NSN 8305-00-267-3009
	Material:	Nylon Webbing Type XVII, MIL-W-4088



- NOTES:**
 1. MARK PER BPS FW 4050
 2. ALL INSIDE RADII 0.25

Figure D-280.	Part Number	205-070-795-1 COVER
	Fabricate from:	NSN 9535-00-232-0378
	Material:	2024 AL ALY, Federal Specification QQ-A-362 T3, 0.063 Inch Thick, 3.5 Inch Wide, 11.70 Inch Long

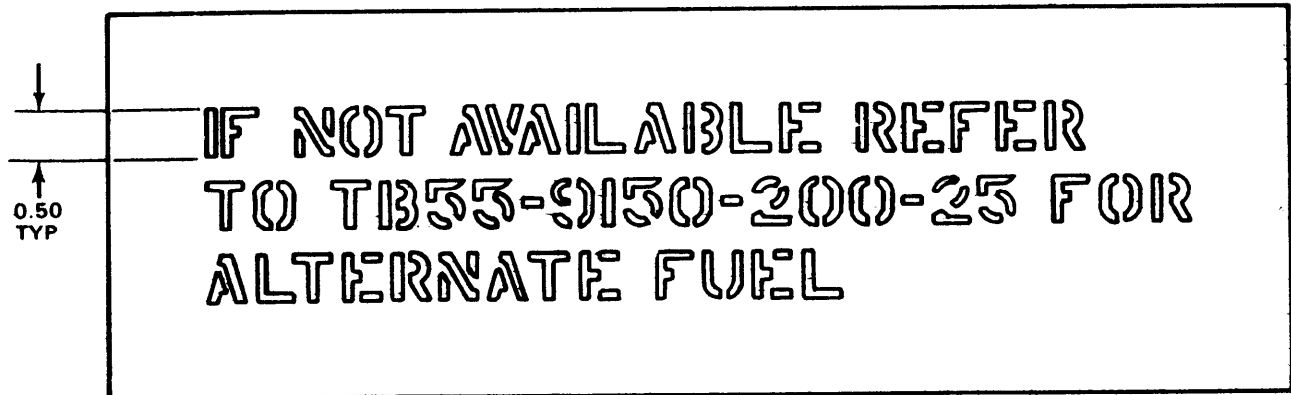
Figure D-281.



NOTES:

LETTERS TO BE SPACED APPROX AS SHOWN

Figure D-281. Part Number 205-070-862-1 STENCIL
 Fabricate from: 9310-00-265-6797
 Material: Stencil Board, Federal Specification UU-S-625
 Type 2, Grade 1



NOTES:

LETTER TO BE SPACED AS SHOWN

Figure D-282. Part Number 205-070-882-1 STENCIL
Fabricate from: NSN 9310-00-265-6797
Material: Stencil Board, Federal Specification UU-S-625,
Type 2 Grade 1

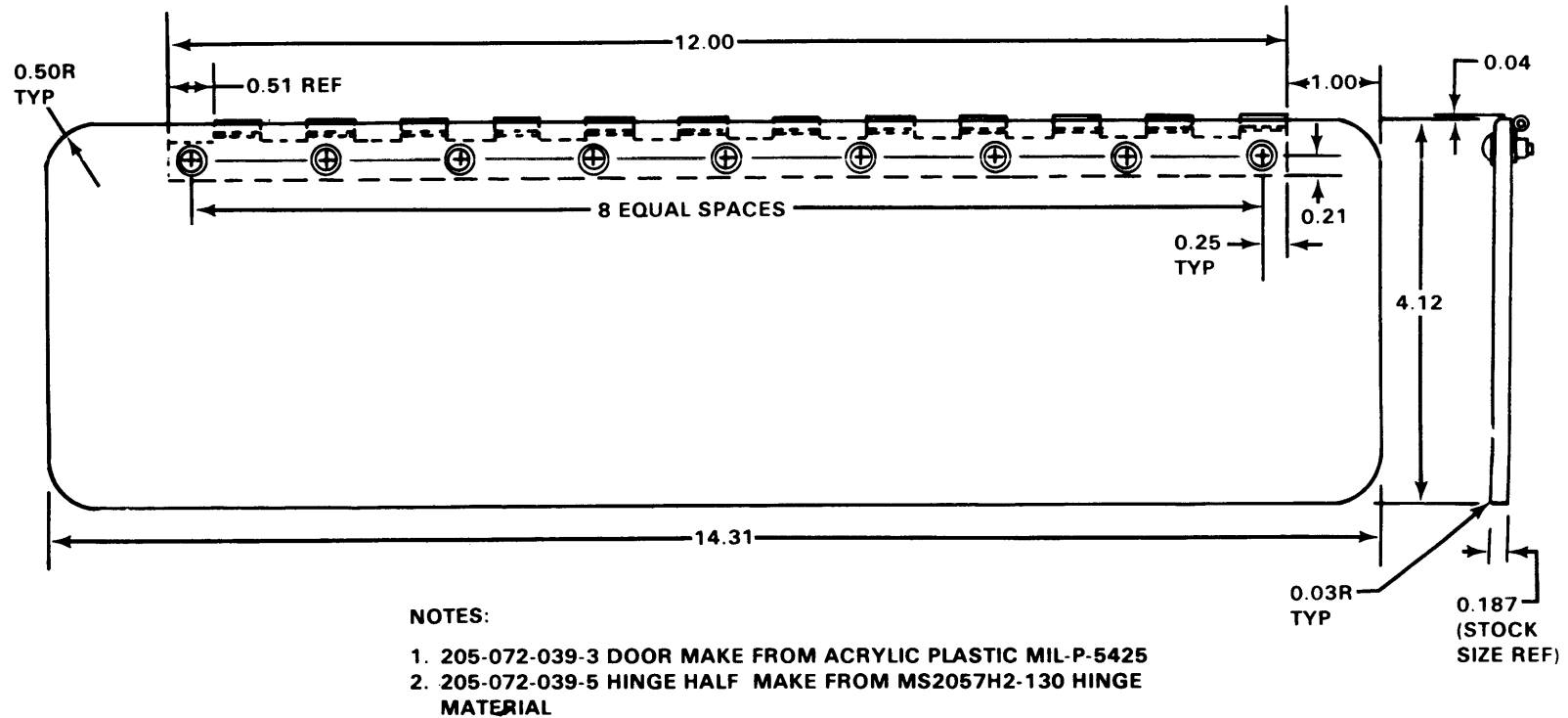


Figure D-283. Part Number 205-072-039-1 DOOR, Assy Of
Fabricate from: NSN 9330-00-291-4800,
NSN 5340-00-993-1461
Material: Plastic sheet Acrylic Transparent, Federal Specification
MIL-P-5425 FINA, 0.187 Inch Thick, 4.2 Inch Wide, 14.4 Inch Long
Leaf, Butt Hinge A1 A AL ALY 0.0531 Inch Wide Make From
MS20257HP2-130 (Length 13.0)