

7 November 2003

Maintenance of Supplies and Equipment  
Army Materiel Maintenance Policy

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**\*This supplement supersedes USAREUR Supplement 1 to AR 750-1, 7 September 2001.**

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For the CG, USAREUR/7A:

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**Summary.** This supplement prescribes Army in Europe policy for tactical materiel maintenance. It also realigns chapters, paragraphs, appendixes, figures, and tables to coincide with the new AR 750-1 (dated 18 Aug 03). Several maintenance programs were moved from chapter 4 to chapter 7. This supplement includes the most current terminology (for example, “the deputy chief of staff, logistics” is now the “G4”; the “specialized repair activity (SRA)” is now called “specialized repair authority (SRA)” (para 3-18)).

**NOTES:**

1. The provisions of DA Pamphlet 738-750, paragraphs 1-6e through h, apply where maintenance forms are mentioned in this supplement.
2. The maintenance policy and procedures in this supplement apply only to units at homestation in the central region (Belgium, Germany, Italy, Luxembourg, and the Netherlands). For contingency operations, the proponent of this supplement will incorporate the relevant policy and procedures into the logistics section of the appropriate USAREUR operation order.
3. This supplement covers both manual and automated maintenance forms and records. Manual forms (listed in DA Pam 738-750, chap 3) are also automated in the Standard Army Maintenance System (SAMS). Some manual maintenance forms and records also have automated equivalents in the Unit-Level Logistics System (ULLS). These forms are shown in DA Pamphlet 738-750, chapter 12. Automated systems that support The Army Maintenance Management System (TAMMS) take precedence over manual systems.

**Applicability.** This supplement applies to—

- USAREUR major subordinate and tenant commands (AE Reg 10-5, app A).
- Using units and support-maintenance activities maintaining tactical equipment at homestation in the central region.
- Materiel management centers.

**Supplementation.** Commanders will not supplement this supplement without USAREUR G4 (AEAGD-MD-P) approval.

**Forms.** AE and higher-level forms are available through the Army in Europe Publishing System (AEPUBS).

**Records Management.** Records created as a result of processes prescribed by this supplement must be identified, maintained, and disposed of according to AR 25-400-2. Record titles and descriptions are available on the Army Records Information Management System website at <https://www.arims.army.mil>.

**Suggested Improvements.** The proponent of this supplement is the USAREUR G4 (AEAGD-MD-P, DSN 370-5950). Users may suggest improvements to this supplement by sending DA Form 2028 to the USAREUR G4 (AEAGD-MD-P), Unit 29351, APO AE 09014-9351.

**Distribution.** A (AEPUBS).

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AR 750-1, 18 August 2003, is supplemented as follows:

**Page vi, Contents.** Add the following chapter and paragraphs:

**Chapter 9**

**Maintenance of Tactical Vehicle Canvas Items, USAREUR Brake-Testing Policy, and M1/M1A1 Abrams Recovery and Evacuation Policy**

- 9-1. Maintenance of Tactical Vehicle Canvas Items
- 9-2. USAREUR Brake-Testing Policy for Tactical Vehicles
- 9-3. M1/M1A1 Abrams Tank Recovery and Evacuation Policy

**Page vi, Contents.** Add the following to the appendix list:

- H. Maintenance Policy for Orphan Units
- I. Specialized Repair Authority
- J. Aircraft Controlled Exchange Policy
- K. Modification Work Order Program
- L. Maintenance Assistance and Instruction Team Program
- M. USAREUR Contract Maintenance Support Policy
- N. Army Oil Analysis Program
- O. Material and Testing Laboratory Services
- P. Sample Data Collection Program
- Q. Maintenance Float Program
- R. USAREUR Chemical Agent Resistant Coating (CARC) Painting Policy
- S. Ground Support Equipment Tire Maintenance Training
- T. Maintenance of Tactical Vehicle Canvas Items
- U. USAREUR Brake-Testing Policy for Tactical Vehicles
- V. M1/M1A1 Abrams Tank Recovery and Evacuation Policy

**Page vi, Contents.** Add the following to the table list:

- Table H-1. USAREUR Orphan Units
- Table H-2. Non-USAREUR Orphan Units
- Table H-3. USASETAF Responsibility Orphan Units
- Table H-4. 80th ASG Responsibility Orphan Units
- Table R-1. Respirators and Accessories
- Table R-2. Respirator Kits
- Table R-3. CARC NSNs in the Army Master Data File
- Table R-4. Required Respirators for Surface Preparation
- Table U-1. Instructions for Posting the Date of the Last Successful Brake Test on DA Form 5988-E
- Table U-2. Instructions for Scheduling the Date of the Next Brake Test on DA Form 5987-E

**Page vii, Contents.** Add the following to the figure list:

- Figure 4-1. Sample Transmittal Schedule
- Figure J-1. Format for Aircraft Controlled Exchange Record

Figure K-1. Format for an Estimated Cost Breakdown of Expenditures  
Figure Q-1. ORF Codes and Demand Qualifications  
Figure S-1. Sample Statement of Using-Unit Tire Training  
Figure S-2. Sample Statement of DS/GS Maintenance Tire Training  
Figure U-1. Sample DA Form 5988-E  
Figure U-2. Sample DA Form 5987-E  
Figure U-3. Sample DA Form 2404 for Trucks  
Figure U-4. Sample DA Form 2404 for Trailers  
Figure U-5. Format for Confirming Brake-Test Machine Operator Training

**Page 5, paragraph 2-16a(5), Army Commands (Active Component).** Add the following:

Refer to USAREUR Regulation 350-1 for a complete list of maintenance courses.

**Page 6, paragraph 2-16a(13), Army Commands (Active Component).** Add the following:

See USAREUR Supplement 1 to AR 750-43.

**Page 6, paragraph 2-16a(20), Army Commands (Active Component).** Add the following:

The MACOM POC for AOAP, MAIT, MWO, ORF, SDC, SRA, and UIT policy is the USAREUR G4 (AEAGD-MD-P).

**Page 6, paragraph 2-16a, Army Commands (Active Component).** Add subparagraph (24) as follows:

(24) Emphasizes the importance of maintenance to the USAREUR mission. Properly maintained equipment is essential to the overall combat readiness of this command. The Internal Management Control Program, Command Inspection Program, Command Logistics Review Team, Command Supply Discipline Program, and directed or requested staff visits also provide emphasis on maintenance in USAREUR. These programs help identify and solve problems in compliance and ensure maintenance is properly supervised and performed at the lowest level.

**Page 7, paragraph 2-16c(22), Army Commands (Active Component).** Add the following:

Appendix K provides USAREUR policy on MWOs.

**Page 7, paragraph 2-16c, Army Commands (Active Component).** Add subparagraph (23) as follows:

(23) Ensure military maintenance facilities are not used to repair privately owned equipment.

**Page 23, paragraph 3-14, Unit/Organizational-Level Maintenance.** Add subparagraphs n and o as follows:

n. The dispatching unit is responsible for the recovery of tactical vehicles. When a disabled tactical vehicle is outside the local area and the unit cannot be reached, the military police (MP) may be notified. The MP will notify the owning unit of the disabled vehicle. Dispatchers should give tactical vehicle operators the unit telephone number in case of an accident or breakdown.

o. Appendix H provides USAREUR policy on orphan units.

**Page 24, paragraph 3-15j, DS Maintenance.** Add subparagraph (12) as follows:

(12) When the supporting maintenance activity rejects equipment or returns it to the unit because the equipment was cannibalized or damaged by other than fair wear and tear or because unit-level maintenance was not performed, the technical inspector and shop officer will—

(a) Close out ULLS DA Form 5990-E or DA Form 2407, whichever is appropriate, using the correct work request status codes from DA Pamphlet 738-750, appendix B, table B-21. List all manhours applied against this maintenance request in SAMS-1 when closing out tasks.

(b) If the maintenance request is a DA Form 2407, state the reason for rejection in block 25.

(c) Sign the appropriate equipment inspection and maintenance worksheet (ULLS-G DA Form 5998-E or DA Form 2404) and provide the owning-unit commander a copy of the forms listing equipment deficiencies and shortcomings.

**Page 24, paragraph 3-15, DS Maintenance.** Add subparagraphs m and n as follows:

m. DS maintenance activities will provide emergency maintenance support (including roadside recovery) for tactical vehicles not belonging to units in their support area. When multiple maintenance activities exist in an area, the maintenance activity with a mission most closely matching the support needed will provide the service.

n. Emergency maintenance services will be limited to the repairs necessary to facilitate the equipment's safe return to homestation or operational site, whichever is closer.

**Page 24, paragraph 3-16g(5), GS Maintenance.** Add the following:

The designated cannibalization point for ground equipment is the 21st Theater Support Command (21st TSC), General Support Center, Europe (GSC-E), Rhein Ordnance Barracks, building S-646, Kaiserslautern, Germany (DSN 489-8715). The designated cannibalization point for aviation equipment is the 502d Aviation Maintenance Regiment, Coleman Barracks, building 21, Sandhofen, Germany.

**Page 24, paragraph 3-16g(7), GS Maintenance.** Add the following:

Requests for approval will be sent to the proponent of this supplement through command channels.

**Page 27, paragraph 3-18, Specialized Repair Authority.** Add subparagraph i as follows:

i. Appendix I provides USAREUR policy on specialized repair authorities (SRAs).

**Page 31, paragraph 4-4, Verification Inspections.** Add subparagraph d as follows:

d. The goal is to perform classification technical inspections within 15 workdays after the date the equipment is job-ordered to the supporting DS maintenance unit.

**Page 32, paragraph 4-5, Maintenance Expenditure Limit.** Add subparagraphs k through p as follows:

k. The USAREUR G4 (AEAGD-MD-P) will determine and publish the USAREUR standard military-labor rate each year and revise the rate as required.

(1) The standard military-labor rate—

(a) Is based on the average Army annual-composite-pay rate of personnel with the rank of private first class through sergeant and a 50-percent utilization rate (1,040 hours each year).

(b) Includes direct and indirect labor and an estimated 10 percent of the average composite rate for overhead.

(2) The USAREUR standard military-labor rate will be used for determining the economic reparability of equipment and the estimated cost of damage (ECOD).

(3) Commanders of USAREUR major subordinate and tenant commands will determine DA civilian and local national (LN) standard-labor rates for their maintenance facilities.

l. The standard military-labor rate is based on the average pay and allowances of personnel with the rank of private first class through sergeant, a 50 percent utilization rate (1,040 hours annually), and includes direct, indirect, and 10 percent overhead costs. For this reason, the USAREUR standard military-labor rate will be used for computing MELs and determining economic reparability of equipment.

m. Although SAMS is not a financial accounting system, a maintenance request detail report (AHO-018) may be produced for each customer of the ECOD. SAMS may also be used to produce a list of repairs completed on each item of equipment. Producing the AHO-018 may require three things: an updated UIC support master file loaded with the correct direct rates for military and civilian personnel, a standard cost for indirect labor, or a percentage used to compute costs allocated to each maintenance request. SAMS reports are not to be used for billing purposes.

n. The Commander, 200th Theater Support Command Materiel Management Center (200th TSC MMC), is the MEL waiver authority. Requests to waive published MELs for items (excluding medical materiel) will be sent to the appropriate item manager at the 200th TSC MMC. The Commander, TSC 200th MMC, will send requests for blanket waivers to the appropriate USAMC item manager or equivalent DOD manager.

o. The total estimated cost to repair excess and accident-damaged equipment will include the cost of replaced major assemblies (for example, engines and transmissions) minus the dollar credit for the unserviceable major assemblies, when authorized.

p. The MEL for commercial equipment purchased by USAREUR units is 90 percent of replacement cost.

**Page 34, paragraph 4-6, Equipment Transfer and Turn-In.** Add subparagraphs h through j as follows:

h. The theater POC for Technical Manual (TM) -10/-20 series maintenance standards, inquiries, and waivers is the 200th TSC MMC (AERLA-MMC-DMR) (DSN 484-8132).

i. All equipment transfers from USAREUR units to other MACOMs will be coordinated with a memorandum of agreement (MOA) between USAREUR and the gaining MACOM. The USAREUR G4 (AEAGD-SD) is the proponent for MACOM-to-MACOM MOAs on equipment transfers.

j. The standard for equipment transfers in USAREUR is defined in the basic AR, paragraph 3-2.

**Page 35, paragraph 4-7, Controlled Exchange.** Add subparagraph j as follows:

j. Appendix J provides USAREUR aircraft controlled exchange policy.

**Page 35, paragraph 4-12a, Manpower Utilization Standards.** Add the following:

Man-hour accounting procedures for DS and GS maintenance units and activities are described in the SAMS-1 End User Manual, AIS Manual 25-L21-AHO-ZZZ-EM, and in AIS Manual 25-L21-AHO-ZZZ-EM for SAMS-2.

**Page 36, paragraph 4-14, The Work Order Logistics File.** Add subparagraph e as follows:

e. The reporting process in USAREUR is as follows:

(1) Commanders of units operating under the SAMS are responsible for ensuring the monthly closed work-order request transfer process is completed in SAMS-1 and that the closed work-order data files (AHN4BD) are transmitted to their supporting SAMS-2. The supporting materiel maintenance center (MMC) SAMS-2 must transmit the files to LOGSA. The AHN4BD file contains all closed work-order, tasks, parts information, serial number tracking information (M-1, M1A1, and M1IP tanks only), and ORF data. The sample schedule below (fig 4-1) specifies the monthly from-and-to transmittal schedule. All transmittals must be completed according to subparagraph b above.

(2) Commanders of MMCs are responsible for ensuring that—

(a) Procedures are in place to follow-up on delinquent monthly closed workorder data files (AHN4BD) from SAMS-1 units. Follow-ups must be accomplished before performing the SAMS-2 output process of the Materiel Readiness Support Activity (MRSA) (closed work order) file to LOGSA.

**NOTE:** LOGSA was formerly known as the MRSA. The acronym, however, is still used as an on-screen prompt in SAMS.

(b) Procedures are in place to ensure MMC SAMS-2 successfully completes the monthly output process for transmitting the MRSA (closed work order) file (AH0D1F) to LOGSA. This process can be accomplished only on the MMC SAMS-2.

(c) Procedures are in place to ensure a complete transfer of MMC SAMS-2 MRSA (closed work order) data to LOGSA.

(3) The USAREUR standard for units transmitting closed work-order data to the LOGSA WOLF each month is 100 percent. Commanders of MMCs and SAMS sites are required to establish procedures to ensure that the reporting standard is met. Commanders should make WOLF-reporting performance part of their monthly review and analysis, or part of a similar review.

| <b>Monthly (between 1st and 10th) Maintenance Request Data File (AHN4BD)<br/>Transmittal Schedule</b> |               |                                     |                       |
|---|---------------|-------------------------------------|-----------------------|
| <b>Reports From</b>   | <b>STAMIS</b> | <b>Transmitted To</b>               | <b>STAMIS or File</b> |
| V Corps   | SAMS-1        | V Corps                             | SAMS-2                |
| V Corps   | SAMS-2        | 19th Corps MMC (DPI M230)           | SAMS-2                |
| 19th Corps MMC (DPI M230)   | SAMS-2        | AMC LOGSA                           | WOLF                  |
| 29th Support Group  | SAMS-1        | 200th TSC MMC (DPI M130)            | SAMS-2                |
| 80th Area Support Group   | SAMS-1        | 200th TSC MMC (DPI M130)            | SAMS-2                |
| General Support Center, Europe  | SAMS-1        | 200th TSC MMC (DPI M130)            | SAMS-2                |
| 200th TSC<br>MMC (DPI M130)   | SAMS-2        | LOGSA                               | WOLF                  |
| United States Army Southern<br>European Task Force<br>(USASETAF)                                      | SAMS-1        | HQ USASETAF MMC (DPI M202)          | SAMS-2                |
| HQ USASETAF MMC<br>(DPI M202)   | SAMS-2        | LOGSA                               | WOLF                  |
| 100th Area Support Group  | SAMS-1        | 100th Area Support Group (DPI M131) | SAMS-2                |
| 100th Area Support Group  | SAMS-2        | LOGSA                               | WOLF                  |

**Figure 4-1. Sample Transmittal Schedule**

**Page 37, paragraph 4-18, Private Enterprise.** Add subparagraph e as follows:

- e. Appendix M prescribes USAREUR contract maintenance support policy and procedures.

**Page 39, paragraph 5-1, General.** Add subparagraph e as follows:

- e. The 200th TSC MMC is the USAREUR executive agent for selection of equipment for overhaul, including the Combat Vehicle Evaluation (CVE) Program.

**Page 43, paragraph 5-8, General.** Add subparagraph f as follows:

- f. USAREUR unit-level maintenance of COMSEC equipment and controlled cryptographic items (CCI) is the responsibility of the unit authorized or issued the equipment.

- (1) COMSEC maintenance includes—

- (a) DS maintenance of COMSEC equipment provided by the COMSEC materiel DS activity for divisional units and by COMSEC maintenance detachments for nondivisional units.

- (b) Backup DS, GS, and SRA maintenance of COMSEC equipment provided by 5th Signal Command (5th Sig Cmd) through the Theater COMSEC Logistics Support Center (TCLSC). The TCLSC is located at Coleman Barracks, building 51, Mannheim, Germany (DSN 382-5815).

- (2) CCI maintenance includes—

- (a) DS maintenance of CCI provided by the electronics maintenance shop in the main support battalion of the division support command (DISCOM) for division units and by companies in the 3d Corps Support Command (COSCOM) and 21st TSC for nondivisional units. Units without organic DS maintenance capability and without DISCOM or COSCOM support will use the nearest 21st TSC DS maintenance facility with a CCI-repair capability.

- (b) Backup DS, GS, and SRA maintenance of CCI provided by the TCLSC to theater DS maintenance activities.

(3) Corps and division signal battalions will provide DS maintenance for organic COMSEC equipment and CCI.

(4) The following non-corps units have organic DS COMSEC and CCI maintenance capabilities:

(a) 21st TSC.

(b) USASETAF.

(c) 5th Sig Cmd.

(d) 3d COSCOM.

(e) Maintenance Activity Pirmasens (MAP).

(5) The TCLSC will provide theater backup DS maintenance and GS and SRA maintenance of COMSEC equipment and CCI for theater DS maintenance activities. The 5th Sig Cmd will reimburse USASETAF for all repair parts, equipment, and temporary duty costs associated with repairing 5th Sig Cmd equipment in Italy. The 5th Sig Cmd, with USASETAF concurrence, will stop reimbursement if it is to provide backup COMSEC and CCI support to 5th Sig Cmd units in Italy.

**Page 68, paragraph 7-2, Army Oil Analysis Program.** Add subparagraphs i and j as follows:

i. The AOAP allows early detection and prevention of component failures and increases equipment readiness. Appendix N explains USAREUR AOAP policy and procedures.

j. Appendix O explains USAREUR materiel and testing laboratory services.

**Page 70, paragraph 7-4, Sample Data Collection.** Add subparagraph d as follows:

d. Appendix P provides USAREUR SDC policy.

**Page 70, paragraph 7-5, Army Modification Program.** Add subparagraph g as follows:

g. Appendix K provides USAREUR MWO policy and procedures.

**Page 73, paragraph 7-6, Army Maintenance Float Program.** Add subparagraph j as follows:

j. Appendix Q prescribes USAREUR maintenance float policy.

**Page 73, paragraph 7-8b, Policies for Painting.** Add subparagraph (13) as follows:

(13) Appendix R provides USAREUR CARC painting policy.

**Page 74, paragraph 7-8c(17), Policies for Camouflage Pattern Painting.** Add subparagraphs (a) through (c) as follows:

**(a) Unit Identification Markings (Bumper Markings).** Markings will be applied using black vinyl decals or black camouflage paint on a Desert-Tan, No. 686, background (1-quart can, national stock number (NSN) 8010-01-276-3638; 1-gallon can, NSN 8010-01-276-3639; or 5-gallon can, NSN 8010-01-276-3640). The markings will be centered in a rectangular desert-tan block. The block will be large enough to hold unit identification markings. The desert-tan background will not extend more than 1-inch around the unit markings except for the marking surface on bumperettes, which may be painted entirely in desert-tan. Markings currently on vehicles will not be changed only to comply with this paragraph. Markings will be changed when the vehicle is in unit maintenance or when the markings have been damaged and remarking is considered necessary. Commanders have 6 months to ensure markings are redone after a unit designation change. Commanders should schedule repainting so that it will not disrupt the unit's mission. The desert-tan background will not be used behind any other vehicle markings (for example, tire pressure, diesel fuel only).

**(b) National Symbol.** The national symbol (NSN 7690-01-042-0671) is a five-pointed star in contrasting lusterless black 383 (37030) that fits inside a 3-inch diameter circle. The star will be applied to every tactical and combat vehicle. The star will be placed on the front and rear of vehicles and equipment as stated in Technical Bulletin (TB) 43-0209, section VIII, item 17. It will not be applied to ambulances or other medical vehicles affected by international agreements on those vehicles.

**(c) Weight Classification Sign.** Standard colors for weight classification signs (NSN 9905-00-565-6267) on the front of camouflaged-painted vehicles will be lusterless black numerals on a lusterless forest-green background. When signs are black-on-yellow (or any other color), they will be repainted using the forest-green background at the next semiannual or annual service.

**Page 76, paragraph 7-10, Administrative Storage of Materiel.** Add subparagraph p as follows:

p. To facilitate USAREUR-level requirements (d above), administrative storage of equipment requires USAREUR approval. Equipment placed in administrative storage will be reported through command channels to the proponent of this supplement.

**Page 76, paragraph 7-11a, General Policies.** Add subparagraph (6) as follows:

(6) Using, DS, and GS units will classify tracks, track components, and solid rubber tires according to TM 9-2530-200-24, and pneumatic tires according to TM 9-2610-200-14.

**Page 78, paragraph 7-11e, Training.** Add subparagraphs (7) and (8) as follows:

(7) The Tire Training Course is designed to provide training in—

- (a) Inspection and classification procedures for all types of automotive pneumatic tires.
- (b) Proper mounting and demounting procedures for tires.
- (c) Operation and maintenance of power tire mounter-demounters.

(8) A videotape showing how to operate the Bishman model 931A Tire Mounter-Demounter (NSN 4910-00-675-1478, line item number M71601) is available for loan from the local training aids support center.

**Page 78, paragraph 7-11, The Army Tire Retread Program.** Add subparagraph f as follows:

f. **USAREUR Policy.** Appendix S provides USAREUR ground support equipment tire maintenance and training policy and procedures.

**Page 83, paragraph 7-14, MAIT Program Responsibilities.** Add subparagraph i as follows:

i. Appendix L explains USAREUR MAIT Program responsibilities and policy.

**Page 93.** Add chapter 9 as follows:

## **CHAPTER 9**

### **MAINTENANCE OF TACTICAL VEHICLE CANVAS ITEMS, USAREUR BRAKE-TESTING POLICY, AND M1/M1A1 ABRAMS RECOVERY AND EVACUATION POLICY**

#### **9-1. MAINTENANCE OF TACTICAL VEHICLE CANVAS ITEMS**

Appendix T provides USAREUR policy on maintaining tactical vehicle canvas items.

#### **9-2. USAREUR BRAKE-TESTING POLICY FOR TACTICAL VEHICLES**

Appendix U provides USAREUR tactical vehicle brake-testing policy.

#### **9-3. M1/M1A1 ABRAMS TANK RECOVERY AND EVACUATION POLICY**

Appendix V provides USAREUR M1/M1A1 Abrams tank recovery and evacuation policy.

**Pages 94 through 96, appendix A, Section I, Required Publications.** Add the following:

Chairman of the Joint Chiefs of Staff Manual 3150.02, Global Status of Resources and Training Systems (GSORTS)

Military Handbook (MIL-HDBK) 245D, Preparation of Statement of Work (SOW)

Military Specification (MIL-C-46168D(3)), Coating Aliphatic Polyurethane, Chemical Agent Resistant

MIL-C-53039A(2), Coating, Aliphatic Polyurethane, Chemical Agent Resistant

MIL-T-81772B(1), Thinner, Aircraft Coating

MIL-P-53022, Primer, Epoxy Coating, Corrosion Inhibiting, Lead & Chromate Free

United States Army Environmental Hygiene Agency Technical Guide 144, Guidelines for Controlling Health Hazards in Painting Operations (available at <http://chppm-www.apgea.army.mil/documents/TG/TECHGUID/TG144.pdf>)

FM 9-43-2, Recovery and Battlefield Damage Assessment and Repair

FM 10-16, General Fabric Repair

FM 55-30, Army Motor Transport Units and Operations

TB 9-2300-405-14, Mandatory Brake Hose Inspection and Replacement - Tactical Vehicles

TB 43-0211, Army Oil Analysis Program Guide for Leaders and Users

TM 9-2530-200-24, Unit, Direct Support and General Support Maintenance Manual Standards for Inspection and Classification of Tracks, Track Components and Solid Rubber Tires

TM 9-2350-284-20-1-2, Unit Maintenance for Fighting Vehicle, Infantry M2A2 (NSN 2350-01-284-7619) (EIC: ALG) Fighting Vehicle, Infantry, Operation Desert Storm M2A2 ODS (2350-01-405-9886) (EIC: APE) Fighting Vehicle, M2A2 w/ODS for Engineers (2350-01-494-9960) and Fighting Vehicle, Cavalry M3A2 (2350-01-248-7620) (EIC-ALH) Fighting Vehicle, Cavalry, Operation Desert Storm M3A2 ODS (2350-01-405-9887) (EIC: APF) Hull

TM 38-301 series, Joint Oil Analysis Program Laboratory Manual

Common Table of Allowances 50-909, Field and Garrison Furnishing and Equipment

AIS Manual 25-L21-AHO-ZZZ-EM

AR 5-4, Department of the Army Productivity Improvement Program (DAMRIP)

AR 11-34, The Army Respiratory Protection Program

AR 25-400-2, The Army Records Information Management System (ARIMS)

AR 735-11-2, Reporting of Supply Discrepancies

DA Pamphlet 738-750, Functional Users Manual for The Army Management System (TAMMS)

AE Regulation 10-5, HQ USAREUR/7A Organization and Responsibilities

AE Regulation 55-4, Safe Movement of Hazardous Goods by Surface Modes

AE Regulation 58-1, Management, Acquisition, and Use of Nontactical Vehicles

USAREUR Supplement 1 to AR 750-43, Army Test, Measurement, and Diagnostic Equipment Program

USAREUR Regulation 1-7, Interdepartmental, Interagency, and Intraservice Agreements

USAREUR Regulation 12-16, Mutual Logistic Support Between the U.S. Army and Governments of Eligible Countries, NATO Subsidiary Bodies, and United Nations Organizations

USAREUR Regulation 350-1, Training in USAREUR

USAREUR Regulation 600-700, Identification Cards and Individual Logistics Support

USAREUR Regulation 715-2, USAREUR Acquisition Regulation and USAREUR Acquisition Instruction (UAI)

USAREUR Regulation 750-10, USAREUR Base Operations Maintenance Policy

USAREUR Pamphlet 715-5, Customer Acquisition Guide

**Page 101, appendix A, section IV, Referenced Forms.** Add the following:

OF 346, US Government Motor Vehicle Operator's Identification Card

DD Form 362, Statement of Charges/Cash Collection Voucher

DD Form 1131, Cash Collection Voucher

DD Form 1222, Request for and Results of Test

DD Form 1384-2, Transportation Control and Movement Document

DD Form 2026, Oil Analysis Request

DA Form 348, Equipment Operator's Qualification Record

DA Form 461-5, Vehicle Classification Inspection

DA Form 1296, Stock Accounting Record

DA Form 2408-5, Equipment Modification Record

DA Form 2408-9, Equipment Control Record

DA Form 2765-1, Request for Issue or Turn-In

DA Form 3161, Request for Issue or Turn-In

DA Form 3590, Request for Disposition or Waiver

DA Form 4697, Department of the Army Report of Survey

DA Form 4949, Administrative Adjustment Report

DA Form 5987-E, Motor Equipment Dispatch

**Page 122.** Add appendixes H through V.

**Page 123, glossary.** Add the following:

|               |  |
|---------------|--|
| 5th Sig Cmd   | 5th Signal Command                                       |
| 7th ARCOM     | 7th Army Reserve Command                                 |
| 200th TSC MMC | 200th Theater Support Command Materiel Management Center |
| 21st TSC      | 21st Theater Support Command                             |
| A&I           | assistance and instruction                               |
| AAC           | acquisition advice code                                  |
| ACofS, G4     | assistant chief of staff, G4                             |
| ACOR          | alternate contracting officer's representative           |
| ACSA          | acquisition and cross-servicing agreement                |
| ASG           | area support group                                       |
| BENELUX       | Belgium, the Netherlands, Luxemburg                      |
| BFV           | Bradley fighting vehicle                                 |
| CBS-X         | Continuing Balance System-Expanded                       |

|               |   |
|---------------|---|
| CCA           | circuit card assembly   |
| CFT           | contract field team   |
| CHPPM         | United States Army Center for Health Promotion and Preventive Medicine-Europe               |
| COR           | contracting officer's representative  |
| COTR          | contracting officer's technical representative  |
| <i>DIN</i>    | <i>Deutsche Industriennorm</i>  |
| DISCOM        | division support command  |
| DODAAC        | Department of Defense activity address code   |
| DS+           | direct support plus   |
| DSN           | Defense Switched Network  |
| DSU           | direct support unit   |
| EMF           | Equipment Master File   |
| ERS           | electronic repair shelter   |
| ESS-X         | equipment storage site-expanded   |
| FSN           | fiscal station number   |
| GSC-E         | General Support Center, Europe  |
| HET           | heavy equipment transporter   |
| HQ USAREUR/7A | Headquarters, United States Army, Europe, and Seventh Army                                  |
| HVCP          | Hazardous Vehicle Certification Permit  |
| ID            | identification  |
| ID/IQ         | indefinite delivery/indefinite quantity   |
| IMCSRS        | Installation Materiel Condition Status Reporting System                                     |
| JARB          | Joint Acquisition Review Board  |
| LN            | local national  |
| LON           | letter of notification  |
| MAP           | Maintenance Activity Pirmasens  |
| MCP           | maintenance collection point  |
| MCT           | movement central team   |
| MERA          | maintenance engineer repair authorization   |
| MIPR          | Military Interdepartmental Purchase Request (DD Form 448)                                   |
| MMC           | materiel management center  |
| MMIS          | Modification Management Information System  |
| MND-N         | Multinational Division, North   |
| MOC           | maintenance operational check   |
| MOI           | memorandum of instruction   |
| MON           | memorandum of notification  |
| MP            | military police   |
| MRSA          | Materiel Readiness Support Activity   |
| MSHA/NIOSH    | Mine Safety and Health Administration/National Institute for Occupational Safety and Health |
| MWOFP         | modification work order fielding plan   |
| NAMSA         | NATO Maintenance and Supply Agency  |
| NCO           | noncommissioned officer   |
| NATO          | North Atlantic Treaty Organization  |
| NMP           | National Maintenance Point  |
| OF            | optional form   |
| OPCON         | operational control   |
| PBO           | property book officer   |
| PCB           | polychlorbiphenyl   |
| PCN           | product control number  |
| PCP           | pentachlorphenal  |
| PEL           | permissible exposure limit  |
| PR&C          | purchase request and commitment   |
| R&A           | review and analysis   |
| RCO           | regional contracting office   |
| SCR           | senior command representative   |
| SMART         | Supply, Maintenance, and Assessment Review Team   |
| SOW           | statement of work   |
| SRA           | stock record account; specialized repair authority  |
| TCLSC         | Theater COMSEC Logistics Support Center   |

|              |  |
|--------------|--|
| TFF          | Task Force Falcon  |
| TG           | technical guide  |
| TLMCMO       | Theater Logistics Maintenance Contract Management Office |
| <i>TÜV</i>   | <i>Technischer Überwachungsverein</i>                    |
| ULLS-G       | Unit Level Logistics System - Ground                     |
| U.S.         | United States  |
| USACCE       | United States Army Contracting Command, Europe           |
| USAEHA       | United States Army Environmental Hygiene Agency          |
| USAMC        | United States Army Materiel Command                      |
| USAMC-Europe | United States Army Materiel Command, Europe              |
| USAREUR      | United States Army, Europe                               |
| USASETAF     | United States Army Southern European Task Force          |

**APPENDIX H  
MAINTENANCE POLICY FOR ORPHAN UNITS**

**H-1. PURPOSE**

This appendix establishes unit-level maintenance support policy for orphan units. An orphan unit is a USAREUR or non-USAREUR (modification table of organization (MTOE) or table of distribution and allowances (TDA)) unit assigned to a USAREUR major subordinate command (AE Reg 10-5, app A) that is not authorized a unit-level maintenance section. Orphan unit maintenance program participation is encouraged. An alternate maintenance source (for example, the 7th Army Reserve Command (7th ARCOM) Equipment Storage Site - Expanded (ESS-X) contract) may be used at the commander's discretion on a nonreimbursable basis (at unit cost).

**H-2. APPLICABILITY**

This policy applies to—

- a. Tactical units in USAREUR.
- b. Nontactical units in USAREUR with tactical equipment.
- c. Non-USAREUR units that are not authorized organic unit-level maintenance support.

**H-3. POLICY**

- a. Supporting units will make initial contact as soon as possible with the unit for which they are responsible.
- b. Supporting and orphan units will establish an interservice support agreement (ISSA). Issues that cannot be resolved between the two units will be referred to the USAREUR G4 (AEAGD-MD-P) for decision.
- c. Supporting units are not required to provide support to the orphan unit until an ISSA is in place.
- d. Orphan units will comply with the supporting unit's maintenance standing operating procedure.

**NOTE:** The information in tables H-1, H-2, H-3, and H-4 is correct as of 1 November 1999. The USAREUR G4 (AEAGD-MD-R) provided the information for these tables.

| <b>Table H-1<br/>USAREUR Orphan Units</b>  |                 |                |
|--|-----------------|----------------|
| <b>SUPPORTED (ORPHAN) UNIT</b>   | <b>LOCATION</b> | <b>COMMAND</b> |
| <b>V CORPS RESPONSIBILITY</b>  |                 |                |
| 38th Postal Company (Platoon)  | Ansbach         | 1st PERSCOM    |
| Detachment D, 106th Finance Battalion  | Ansbach         | 266th FINCOM   |
| Detachment C, 38th Personnel Services Battalion  | Ansbach         | 1st PERSCOM    |
| Detachment B, 90th Personnel Services Battalion  | Bad Kreuznach   | 1st PERSCOM    |
| Detachment B, 8th Finance Battalion  | Bad Kreuznach   | 266th FINCOM   |
| Headquarters and Headquarters Detachment (HHD), 410th Base Support Battalion                 | Bad Kreuznach   | 104th ASG      |
| 301st Support Center   | Bamberg         | 7th ARCOM      |
| 305th Support Center   | Bad Kreuznach   | 7th ARCOM      |
| 316th Support Center   | Bamberg         | 7th ARCOM      |
| 345th Support Center   | Bamberg         | 7th ARCOM      |
| Headquarters and Headquarters Company (HHC), Detachment A, 90th Personnel Services Battalion | Baumholder      | 1st PERSCOM    |
| HHD, 222d Base Support Battalion   | Baumholder      | 104th ASG      |
| Detachment A, 8th Finance Battalion  | Baumholder      | 266th FINCOM   |
| HHD, 8th Finance Battalion   | Baumholder      | 266th FINCOM   |
| Detachment A, 39th Finance Battalion   | Darmstadt       | 266th FINCOM   |
| Detachment C, 55th Personnel Services Battalion  | Friedberg       | 1st PERSCOM    |
| HHD, 38th Personnel Services Battalion   | Giebelstadt     | 1st PERSCOM    |

| <b>Table H-1<br/>USAREUR Orphan Units</b>               |                 |                |
|---|-----------------|----------------|
| <b>SUPPORTED (ORPHAN) UNIT</b>                          | <b>LOCATION</b> | <b>COMMAND</b> |
| <b>V CORPS RESPONSIBILITY</b>                           |                 |                |
| 55th Postal Company                                     | Hanau           | 1st PERSCOM    |
| HHD and Detachment A, 55th Personnel Services Battalion | Hanau           | 1st PERSCOM    |
| HHD, 39th Finance Battalion                             | Hanau           | 266th FINCOM   |
| 309th Support Center                                    | Hanau           | 7th ARCOM      |
| Detachment C, 39th Finance Battalion                    | Kirchgöns       | 266th FINCOM   |
| Detachment A, 38th Personnel Services Battalion         | Kitzingen       | 1st PERSCOM    |
| Adjutant General Replacement Company                    | Rhein Main      | 7th ARCOM      |
| 454th Replacement Regulating Detachment                 | Rhein Main      | 7th ARCOM      |
| 64th Replacement Detachment                             | Rhein Main      | 1st PERSCOM    |
| Detachment C, 106th Finance Battalion                   | Schweinfurt     | 266th FINCOM   |
| 38th Postal Company (Platoon)                           | Schweinfurt     | 1st PERSCOM    |
| Detachment B, 38th Personnel Services Battalion         | Schweinfurt     | 1st PERSCOM    |
| Detachment B, 39th Finance Battalion                    | Wiesbaden       | 266th FINCOM   |
| Detachment B, 55th Personnel Services Battalion         | Wiesbaden       | 1st PERSCOM    |
| 317th Rear Area Operations Center                       | Wiesbaden       | 7th ARCOM      |
| HHD, 106th Finance Battalion                            | Würzburg        | 266th FINCOM   |
| 38th Postal Company (Platoon)                           | Würzburg        | 1st PERSCOM    |
| 38th Postal Company Headquarters                        | Würzburg        | 1st PERSCOM    |
| <b>21ST TSC RESPONSIBILITY</b>                          |                 |                |
| 64th Medical Detachment                                 | Böblingen       | 30th Med Bde   |
| HHC 7th ARCOM   | Heidelberg      | 7th ARCOM      |
| 221st Public Affairs Detachment                         | Heidelberg      | 7th ARCOM      |
| 33d Army Band   | Heidelberg      | USAREUR        |
| Detachment B, 510th Personnel Services Battalion        | Heidelberg      | 1st PERSCOM    |
| HHC, 1st Personnel Command                              | Heidelberg      | 1st PERSCOM    |
| HHC, 266th Finance Command                              | Heidelberg      | 266th FINCOM   |
| HQ USAREUR/7A   | Heidelberg      | USAREUR        |
| 1172d Transportation Detachment (Movement Control)      | Kaiserslautern  | 7th ARCOM      |
| 1177th Transportation Detachment (Movement Control)     | Kaiserslautern  | 7th ARCOM      |
| Air Terminal Movements Control Team                     | Kaiserslautern  | 7th ARCOM      |
| 616th Transportation Detachment (Movement Control)      | Kaiserslautern  | 7th ARCOM      |
| 617th Transportation Detachment (Movement Control)      | Kaiserslautern  | 7th ARCOM      |
| Detachment C, 8th Finance Battalion                     | Kaiserslautern  | 266th FINCOM   |
| 90th Postal Company                                     | Kaiserslautern  | 1st PERSCOM    |
| 90th Personnel Services Battalion                       | Kaiserslautern  | 1st PERSCOM    |
| Detachment C, 90th Personnel Services Battalion         | Kaiserslautern  | 1st PERSCOM    |
| 310th Theater Army Area Command                         | Kaiserslautern  | 7th ARCOM      |
| 313th Support Center                                    | Kaiserslautern  | 7th ARCOM      |
| 330th Rear Tactical Operations Center                   | Kaiserslautern  | 7th ARCOM      |
| 280th Support Center                                    | Mannheim        | 7th ARCOM      |
| 510th Postal Company                                    | Mannheim        | 1st PERSCOM    |
| HHC, Detachment A, 510th Personnel Services Battalion   | Mannheim        | 1st PERSCOM    |
| HHD, 208th Finance Battalion                            | Mannheim        | 266th FINCOM   |
| 615th Freight Consolidation and Distribution Detachment | Mannheim        | 7th ARCOM      |
| 673rd Transportation Detachment                         | Mannheim        | 7th ARCOM      |
| Detachment C, 208th Finance Battalion                   | Stuttgart       | 266th FINCOM   |
| Detachment C, 510th Personnel Services Battalion        | Stuttgart       | 1st PERSCOM    |
| <b>SEVENTH ARMY TRAINING COMMAND RESPONSIBILITY</b>     |                 |                |
| Detachment D, 38th Personnel Services Battalion         | Grafenwöhr      | 1st PERSCOM    |
| Detachment B, 106th Finance Battalion                   | Vilseck         | 266th FINCOM   |

| <b>Table H-2<br/>Non-USAREUR Orphan Units</b>                       |                 |                |
|---|-----------------|----------------|
| <b>SUPPORTED (ORPHAN) UNIT</b>                                      | <b>LOCATION</b> | <b>COMMAND</b> |
| <b>V CORPS RESPONSIBILITY</b>                                       |                 |                |
| 52d Signal Battalion  | Kitzingen       | 5th Sig Cmd    |
| <b>21ST TSC RESPONSIBILITY</b>                                      |                 |                |
| 181st Signal Company  | Heidelberg      | 5th Sig Cmd    |
| 43d Signal Battalion  | Heidelberg      | 5th Sig Cmd    |
| HHD, 5th Military Police Battalion (Criminal Investigation Command) | Kaiserslautern  | 2d RGN USACIDC |
| HHC, 5th Signal Command   | Mannheim        | 5th Sig Cmd    |
| 52d Signal Battalion  | Stuttgart       | 5th Sig Cmd    |
| 587th Signal Company  | Stuttgart       | 5th Sig Cmd    |

| <b>Table H-3<br/>USASETAF Responsibility Orphan Units</b> |                 |                |
|---|-----------------|----------------|
| <b>SUPPORTED (ORPHAN) UNIT</b>                            | <b>LOCATION</b> | <b>COMMAND</b> |
| <b>USAREUR Units</b>                                      |                 |                |
| 510th Postal Company (Platoon)                            | Vicenza         | 1st PERSCOM    |
| 663d and 793d Movement Control Teams                      | Vicenza         | 7th ARCOM      |
| Detachment D, 208th Finance Battalion                     | Vicenza         | 266th FINCOM   |
| Detachment D, 510th Personnel Services Battalion          | Vicenza         | 1st PERSCOM    |
| 314th Rear Tactical Operations Center                     | Vicenza         | 7th ARCOM      |
| 14th Transportation Battalion                             | Vicenza         | 21st TSC       |
| <b>Non-USAREUR Units</b>                                  |                 |                |
| HHD, 509th Signal Battalion                               | Vicenza         | 5th Sig Cmd    |

| <b>Table H-4<br/>80th ASG Responsibility Orphan Units</b> |                 |                |
|---|-----------------|----------------|
| <b>SUPPORTED (ORPHAN) UNIT</b>                            | <b>LOCATION</b> | <b>COMMAND</b> |
| <b>USAREUR Units</b>                                      |                 |                |
| 90th Postal Company                                       | Chievres, Be    | 1st PERSCOM    |
| BENELUX Finance Office, 266th Finance Command             | Chievres, Be    | 266th FINCOM   |
| <b>Non-USAREUR Units</b>                                  |                 |                |
| 128th Signal Company                                      | Chievres, Be    | 5th Sig Cmd    |
| HHC, 39th Signal Battalion                                | Chievres, Be    | 5th Sig Cmd    |
| U.S. Army Element - SHAPE                                 | Chievres, Be    |                |
| U.S. Army Element - AFCENT                                | Chievres, Be    |                |
| Military Traffic Management Command, Europe               | Rotterdam, NI   | MTMC-EUR       |
| 19th Combat Equipment Company                             | Vriezenveen, NI | CEG-E          |
| 16th Combat Equipment Company                             | Zutendaal, Be   | CEG-E          |

#### **H-4. RESPONSIBILITIES**

a. The USAREUR G4 (AEAGD-MD-R) will—

- (1) Maintain a master list of USAREUR and non-USAREUR orphan units in Europe.
- (2) Ensure a USAREUR command is assigned responsibility for providing unit-level maintenance support to each orphan unit.
- (3) Serve as an arbitrator between units that cannot come to an agreement.

b. The Commanding Generals (CGs), V Corps, 21st Theater Support Command (21st TSC), and Seventh Army Training Command, will—

(1) Establish a system that provides unit-level maintenance support to all units assigned to their commands that are not authorized a unit-level maintenance section.

(2) Assign a unit to provide unit-level maintenance support to USAREUR and non-USAREUR orphans as listed in tables H-1 and H-2.

(3) Provide a list of the supporting units and the orphans they support to the USAREUR G4 (AEAGD-MD-R) and update it as required.

(4) Ensure an alternate unit is identified and assigned to provide support. If an alternate cannot be identified, immediately notify the USAREUR G4 (DSN 370-8532) to ensure continuous support of the orphan.

(5) Provide unit-level maintenance and The Army Maintenance Management System (TAMMS) support, including but not limited to dispatching, services scheduling, and licensing.

c. The CG, United States Army Southern European Task Force (USASETAF), will—

(1) Assign a unit or organization to provide unit-level maintenance support to USAREUR and non-USAREUR orphans as listed in table H-3.

(2) Provide a list of supporting units to the USAREUR G4 (AEAGD-MD-R) and update it as required.

(3) Ensure an alternate unit is identified and assigned to provide support. If an alternate cannot be identified, immediately notify the USAREUR G4 (DSN 370-9114) to ensure continuous support of the orphan.

(4) Provide unit-level maintenance and TAMMS support, including but not limited to dispatching, service scheduling, and licensing.

d. The Commander, 80th Area Support Group (ASG), will—

(1) Provide unit-level maintenance support to USAREUR and non-USAREUR orphans as listed in table H-4.

(2) Provide all unit-level maintenance and TAMMS support, including but not limited to dispatching, service scheduling, and licensing.

(3) Obtain reimbursement for parts and labor on all maintenance and repair of tactical vehicles and equipment from orphan units.

e. Commanders of USAREUR commands with orphan units assigned as listed in tables H-1, H-3, and H-4, will ensure their orphan units—

(1) Perform operator-level maintenance as required by the appropriate operator's -10 technical manual.

(2) Provide an operator to help the supporting unit conducting unit-level maintenance.

**NOTE:** 7th ARCOM orphan units will provide an operator to help the supporting unit only if the maintenance is in conjunction with a drill period.

(3) Assign operational control (OPCON) of all unit maintenance personnel to the supporting unit to help conduct unit-level maintenance and TAMMS.

(4) Reimburse the supporting unit for all supplies used in the repair and maintenance of orphan equipment. Reimbursement will be accomplished using an ISSA between the orphan unit and supporting unit.

**NOTE:** Units listed in table H-4 will reimburse total parts and labor costs to the 80th ASG.

(5) Provide the supporting unit with current copies of all equipment authorization documents (for example, MTOEs, TDAs).

(6) Notify the USAREUR G4 (AEAGD-MD-R) of any additions, changes, or deletions of orphan units assigned, including changes in status from orphan to non-orphan unit.

f. Commanders of non-USAREUR commands with orphan units listed in tables H-2, H-3, and H-4 will ensure their orphan units—

(1) Perform operator-level maintenance as required by the appropriate operator's -10 technical manual.

(2) Provide an operator to help the supporting unit conducting unit-level maintenance.

(3) OPCON unit maintenance personnel assigned to the supporting unit to help conduct unit-level maintenance.

(4) Reimburse the supporting unit for all supplies used in the repair and maintenance of orphan equipment. Reimbursement will be accomplished through the use of a DD Form 448 (MIPR) provided by the orphan to the supporting unit. Exceptions are as follows:

(a) 5th Signal Command units are not required to provide reimbursement under a mutual peacetime support memorandum of agreement between the CG, USAREUR/7A, and the CG, 5th Signal Command. Support for 5th Signal Command equipment is on a non-reimbursable basis.

(b) Units listed in table H-4, other than 5th Signal Command units, will reimburse total parts and labor costs to the 80th ASG.

(5) Notify the USAREUR G4 (AEAGD-MD-R) and the supporting unit of projected and actual additions, changes, and deletions of orphan units assigned, including changes in status from orphan to non-orphan unit.

## **APPENDIX I SPECIALIZED REPAIR AUTHORITY**

### **I-1. PURPOSE**

This appendix provides policy and procedures for—

- a. Managing the specialized repair authority (SRA) in USAREUR.
- b. Requesting SRA to perform depot and limited-depot repair of unserviceable class 9 air and ground equipment component parts, including testing of repaired items, with a maintenance repair code (MRC) of “D” or “L”.
- c. Submitting quarterly and annual SRA production reports.

### **I-2. POLICY**

a. The United States Army Materiel Command, Europe (USAMC-E) (AMCLG), is authorized to approve USAREUR SRA requests based on the recommendations of its major subordinate commands (MSCs) (for example, the United States Army Armament and Chemical Acquisition and Logistics Activity, United States Army Aviation and Missile Command (AMCOM), United States Army Communications and Electronics Command (CECOM), United States Army Tank-Automotive and Armaments Command). Only the Office of the Deputy Chief of Staff, G4, HQDA (DALO-SMM), is authorized to disapprove SRA requests in USAREUR.

b. The following types of maintenance activities may request SRA to perform depot and limited depot repair of unserviceable class 9 component parts, including the testing of repaired items, with an MRC of “D” or “L”:

(1) Tactical direct support (DS) or general support (GS) maintenance activities with an electronic repair shelter (ERS) and the required test program set (TPS) to repair circuit card assemblies (CCAs) (currently only 71st Ordnance Company).

(2) Theater-level DS maintenance activities supporting the National Maintenance Program (currently only 5th Maintenance Company).

(3) Modification table of organization and equipment (MTOE) GS maintenance units, including aviation intermediate maintenance units.

(4) Table of distribution and allowances (TDA) GS maintenance activities responsible for supporting tactical equipment and component parts.

(5) Contract-maintenance activities supporting tactical equipment and component parts.

c. The cost of additional tools and test equipment and the estimated repair cost of each item will be included in the SRA request. The total one-time start-up acquisition cost of repairing or testing MRC “D” and “L” items will be prorated in the number of items to be repaired during the period for which SRA is requested.

d. Commanders who contract for foreign or domestic commercial depot maintenance of equipment and components will ensure contracts include SRA. This includes implementing arrangements with the NATO Maintenance and Supply Agency (NAMSA).

e. When a repair task, previously coded GS level or below (MRC “O,” “F,” or “H”) is re-coded to depot level (MRC “D” or “L”), the repair facility may continue to perform the repair task until all unserviceable components on-hand at the time of the code change are repaired or the required repair parts (on-hand or due-in at the time of the code change) are depleted, whichever occurs first.

### **I-3. RESPONSIBILITIES**

a. The USAREUR G4 (AEAGD-MD-P, DSN 370-8600) will manage the SRA Program in USAREUR. The G4 (AEAGD-MD-P) maintains a historical file of national stock numbers (NSNs) and maintenance tasks for which USAREUR DS, GS, and contract-maintenance activities have been granted SRA.

b. The Support Operations Division, 21st Theater Support Command (21st TSC), and the Materiel Readiness Division, Office of G4, Headquarters, V Corps, will—

(1) Evaluate SRA requests and send the requests that are recommended for approval to the USAREUR G4 (AEAGD-MD-P), Unit 29351, APO AE 09014-9351.

(2) Validate the continued requirement for SRA for each approved NSN or maintenance task and report the results (including recommendations for deletion) to the USAREUR G4 (AEAGD-MD-P) by 15 October each year.

(3) Send quarterly and annual SRA/maintenance engineer repair authorization (MERA) production reports for Operations and Maintenance, Army, funded repairs to the USAREUR G4 (AEAGD-MD-P), Unit 29351, APO AE 09014-9351, to arrive by 15 January (for first quarter fiscal year (FY)), 15 April (for second quarter FY), 15 July (for third quarter FY), and 15 October (for fourth quarter FY and annual FY) each year.

(4) Send quarterly and annual SRA/MERA production reports for Army Working Capital Fund repairs to the National Logistics Coordination Office - Europe (AMCLG-NLCO-EUR), Unit 23203, APO AE 09263-3203, to arrive by 15 January (for first quarter FY), 15 April (for second quarter FY), 15 July (for third quarter FY), and 15 October (for fourth quarter FY and annual FY) each year.

#### **I-4. PROCEDURES**

a. The requesting maintenance activity will prepare requests for SRA according to the basic AR, paragraph 3-18b and table 3-3.

**NOTE:** Units with an ERS and the required TPS to repair CCAs currently have HQDA SRA to repair MRC “L” circuit cards. These CCA repairs will be included in the SRA production reports described in paragraph I-3b(3). The M1 Abrams tank engines, forward and rear engine modules, and auxiliary and reduction gearboxes repaired in the Direct Support-Plus (DS+) Maintenance Program do not require SRA.

b. A separate SRA request will be required for each NSN. The AMCOM-managed items require a separate SRA request for each MRC “D” or “L” repair task. Supplementary information in the SRA request will include the—

(1) Nomenclature; NSN; part number; source, maintenance, and recoverability (SMR) code; acquisition advice code (AAC); and estimated quantity of repair parts required to accomplish the depot-level repairs for the duration of the SRA.

(2) Specific activity designation and DOD activity address code (DODAAC) that will be ordering AAC “M” depot-level replacement parts through the Army wholesale supply system.

**NOTE:** AAC “M” prohibits the routine issue of specific depot maintenance repair parts to unauthorized requesters.

c. The current Federal Logistics Record (FED LOG) will be used to verify the MRC, cost, and unserviceable credit data of the item for which SRA is requested. In case of conflict between the MRC listed in the FED LOG and the SMR code in the applicable repair parts technical manual, the current FED LOG will take precedence. The FED LOG will be used to determine the AAC of all required repair parts.

d. The requesting maintenance activity will send SRA requests through command channels to the USAREUR G4 (AEAGD-MD-P), Unit 29351, APO AE 09014-9351. The Chief, Maintenance Division, Office of the G4, HQ USAREUR/7A, will—

(1) Disapprove SRA requests when the total cost of repair, including one-time startup costs, exceeds the FED LOG replacement cost minus the unserviceable credit, except for items that affect readiness and have long lead-times.

(2) Send SRA requests recommended for approval directly to the applicable United States Army Materiel Command (USAMC) MSC according to the basic AR, paragraph 3-18b, and table 3-3, item 3.

(3) Provide feedback on approved or disapproved SRA authorization requests to the requesting maintenance activity.

e. USAREUR MSCs and tenant commands (AE Reg 10-5, app A) with approved SRAs and MERAs will submit quarterly and annual production reports to the offices identified in paragraphs I-3b(3) and (4).

- (1) For each approved SRA and MERA, the maintenance activity will report the following:
  - (a) Date of the repair.
  - (b) SRA or MERA number.
  - (c) National item identification number (NIIN), part number, and serial number, if applicable, of the item repaired.
  - (d) Parts data: NIIN or part number, quantity, unit cost, and extended cost of the parts used in the repair process.
  - (e) Labor data: Manhours and labor cost. (Identify whether the labor was DOD or contract labor.)
  - (f) Total repair cost: Cost of parts plus cost of labor ((d) plus (e) above).
  - (g) POC and telephone number at the submitting maintenance activity.
- (2) The offices identified in paragraphs I-3b(3) and (4) above will send—
  - (a) A consolidated annual report to the USAMC (AMCLG-LMM), 5001 Eisenhower Avenue, ALEX VA 22333-0001.
  - (b) A copy of the consolidated report to each USAREUR MSC and tenant command that provided input.

## **APPENDIX J AIRCRAFT CONTROLLED EXCHANGE POLICY**

### **J-1. PURPOSE**

This appendix supports the controlled-exchange policy for aircraft in the basic regulation, paragraph 4-7, and in Technical Manual (TM) 1-1500-328-23.

### **J-2. GENERAL**

a. Controlled exchange is the removal of serviceable components from economically repairable end items for immediate reuse in restoring a like item or aircraft to a mission capable (MC) condition. All removable parts (including line-replaceable units, avionics (radios, instruments), aircraft survivability equipment) are considered components.

b. Controlled exchange should be conducted only as a last resort to support operational mission requirements. Preflight of standby aircraft for missions and use of available MC float aircraft will reduce the controlled-exchange requirement. The exchange of components from aircraft entering extensive maintenance to expedite completion of maintenance on other aircraft provides the greatest readiness gain from controlled exchange.

### **J-3. POLICY**

a. Controlled exchange of aviation-system components is authorized only when—

(1) A valid requisition has been submitted to replace an unserviceable item.

(2) Required components are not available from the supply system before the required delivery date (RDD).

(3) The aircraft from which the component is removed is classified as not mission capable supply (NMCS), not mission capable maintenance (NMCM), or partially mission capable (PMC). (Controlled exchange from PMC aircraft will be limited to components of the subsystems that were PMC before the exchange requirement. In no case will additional subsystems be degraded to PMC.)

(4) The maintenance effort required to restore all the unserviceable repairable materiel involved to an MC condition is within the maintenance allocation chart (MAC) authorization for the aircraft and capability of the unit performing the controlled exchange (or when the unit has a letter of authorization from the supporting aviation intermediate maintenance (AVIM) unit).

(5) It is the only way to eliminate an adverse effect on the operational readiness of the unit, organization, or activity performing the exchange.

b. Components will not be removed from aircraft awaiting final inspection, maintenance operational check (MOC), or test flight. Additional components will not be removed from aircraft that have passed a successful final inspection or MOC.

c. Controlled exchange by aviation unit maintenance (AVUM) is authorized only when—

(1) It is the only way to provide required aircraft to support an operational requirement. Maintenance completion will not be expedited through controlled exchange solely to improve reported readiness rates.

(2) Approved by an aviation lieutenant colonel (05) in the chain of command. V Corps may delegate approval authority to majors for medium-lift companies, air-ambulance companies, and units geographically separated from their parent units in specific areas where an aviation lieutenant colonel is not normally available.

d. Controlled exchange by AVIM units is authorized only when it is the only way to provide an MC aircraft to a supported unit within the timelimit indicated by the issue priority designator (IPD) on the maintenance request.

### **J-4. MANAGEMENT PROCEDURES**

a. **Local Procedures.** Local commanders will establish procedures to ensure—

(1) Requisitions for replacement components are sent immediately.

- (2) Aircraft or subsystems will not be degraded to an uneconomically repairable condition.
- (3) Aircraft from which a component was removed is protected from further degradation.
- (4) Organizations performing controlled exchange take prompt action to restore unserviceable materiel to an MC condition.

**b. Exchange Timelimits.** AVUM and AVIM commanders will establish timelimits when aircraft may act as donors to controlled exchange. Timelimits should not exceed the average order/ship time for the unit's normal supply support.

**c. Inspection Requirements.** Before installation on receiving aircraft, all components exchanged will be inspected and serviced (if applicable) according to the next scheduled—

- (1) Phase elements of the donor aircraft that apply to the component being moved.
- (2) Calendar inspection that applies to the component listed on the donor aircraft's DA Form 2408-18.

**d. Documentation.**

(1) A record of removed parts will be maintained and aircraft records annotated for each item removed or reinstalled. A locally produced control record will be used to control exchange activity. Control forms will include at least the information in figure J-1.

(2) A copy of the exchange control record will be attached to both the donor and receiving aircraft maintenance records. Control records will be filed and disposed of according to the procedures that apply to the maintenance record to which it is attached.

**e. Troubleshooting.**

(1) Components exchanged between MC and NMC aircraft to support troubleshooting (periods of less than 1 workday) are exempt from the control procedures in this appendix. Removal of components for troubleshooting will be immediately documented on donor and receiving aircraft maintenance records. The serial numbers of the components involved will be noted on entries for both donor and receiving aircraft. Components will be immediately reinstalled on donor aircraft after troubleshooting is completed. A qualified technical inspector will inspect every component reinstallation. When a decision is made to leave a troubleshooting component installed for more than 1 workday, the policy in this appendix will apply and the exchange will be documented on a control record.

(2) Installing a serviceable component in an unserviceable aircraft can lead to the failure of the new component by the same wire or system fault that caused the first failure. When using controlled exchange for troubleshooting, the suspected unserviceable parts should be tested in a serviceable aircraft.

**f. DA Form 1352.**

(1) Commander's statements will be entered on DA Form 1352 to document controlled exchange during the report period. Reports will show serial numbers of donor aircraft, serial numbers of receiving aircraft, nomenclatures, NSN of exchanged parts, and document numbers for replacement parts, and manhours to complete the action. The inspection, MOC, and test-flight requirements will be included in the manhours.

(2) The policy in this appendix will remain in effect during transition to war, preparation for deployment, and stability operations. Requests for waivers should be sent to the USAREUR G4 (AEAGD-MD-AV), Unit 29351, APO AE 09014-9351.

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## CONTROLLED EXCHANGE RECORD

1. Gaining aircraft serial number:
  2. Donor aircraft serial number:
  3. Mission requirement:
  4. Signature of approving authority:
  5. Document number of requisition:
  6. Document number of turn-in:
  7. Signature of technical supply personnel (certifying that lateral supply search has been conducted, local procurement is not possible, and replacement part is on requisition):
  8. Signature of maintenance supervisor (certifying that local manufacture is not possible and that inspection requirements of component exchange have been completed):
  9. Component serial numbers:
    - a. Serviceable:
    - b. Unserviceable:
  10. Total flight hours:
  11. Receiving aircraft:
  12. Donor aircraft:
  13. Signature of quality-control inspector (certifying that all aircraft forms and records have been annotated according to DA Pam 738-751):
  14. Other locally required information:
- 

**Figure J-1. Format for Aircraft Controlled Exchange Record**

## **APPENDIX K MODIFICATION WORK ORDER PROGRAM**

### **K-1. REFERENCES**

- a. AR 750-10, Army Modification Program.
- b. DA Pamphlet 738-750, Functional Users Manual for The Army Maintenance Management System (TAMMS).
- c. DA Pamphlet 738-751, Functional Users Manual for The Army Maintenance Management System—Aviation (TAMMS-A).
- d. Memorandum of Understanding Between the Commanding General, United States Army, Europe, and Seventh Army, and the Commanding General, United States Army Materiel Command, annex C, DCSHNA file number O-113, 30 September 1991.

### **K-2. PURPOSE**

This appendix provides policy and procedures for controlling, operating, and managing the application of DA emergency, urgent, and routine modification work orders (MWOs) on aeronautical and nonaeronautical tactical equipment (except for medical equipment) in USAREUR.

### **K-3. POLICY**

**a. Aeronautical Equipment.** DA Pamphlet 738-751 prescribes policy and procedures for applying MWOs to aeronautical equipment.

**b. Nonaeronautical Equipment.**

(1) The MWO sponsoring agency is responsible for applying all emergency, urgent, and routine MWOs on equipment in USAREUR active Army units and reserve stocks using depot-maintenance personnel or contract field teams (CFTs), regardless of the amount of time it takes to apply the MWO. If the modification work order fielding plan (MWOFP) does not offer to apply the MWO by contractor team, the USAREUR MWO Program Coordinator will write it into the fielding plan.

(2) Only MWOs with an approved MWOFP may be applied by the sponsoring agency.

(3) No commander at any level will enter into a separate agreement to apply the MWO. Direct coordination by the program executive officer (PEO) or program manager (PM) with the user is not authorized.

(4) No commander at any level will receive MWO kits directly from the CONUS supply source. The sponsoring agency must ship all MWO kits for USAREUR equipment to a central storage facility designated by the United States Army Materiel Command, Europe (USAMC-E).

(5) No commander at any level is authorized or required to order MWO kits unless the approved MWOFP specifies otherwise. This is because the sponsoring agency materiel developer is responsible for applying MWOs to USAREUR equipment at no cost to the unit according to the approved MWOFP. The sponsoring agency will reject unit requests for MWO kits (DA Pam 710-2-1, para 2-14).

(6) Commanders at every level will provide logistics support to the MWO application team according to the approved MWOFP. Logistics support includes office, shop, and storage space; use of telephones and fax and copy machines; forklift and wrecker-truck support; and welding and cutting equipment to the extent that this support is available in the unit. Logistics support also includes providing enough unit personnel to move MWO-designated equipment to and from the MWO shop to meet the MWO application schedule.

(7) When required by the MWOFP, the owning unit will prepare DA Form 2407 and send it to the CFT applying the MWO. After the CFT has applied the MWO and the equipment is returned to the owning unit's control, the CFT will dispose of the completed DA Form 2407 as follows:

**(a) Receipt Copy (#1).** The owning unit will return copy 1 to the CFT.

**(b) National Maintenance Point (NMP) Copy (#2).** The CFT will use copy 2 to report application of the MWO to the sponsoring agency specified in the MWOFPP. The CFT will send copy 2 to the sponsoring agency within 3 days after applying the MWO.

**(c) Control Copy (#3).** Copy 3 will be destroyed or disposed of according to instructions in the MWOFPP.

**(d) Organizational Copy (#4).** Copy 4 will be given to the unit that owns the modified equipment. The owning unit will keep copy 4 until the DA Form 2408-5 is posted with the MWO application when required by DA Pamphlet 738-750, appendix E, table E-2. After the DA Form 2408-5 has been posted, the owning unit may destroy copy 4. When DA Form 2408-5 is not maintained for an item of equipment, copy 4 may be destroyed locally.

**(e) File Copy (#5).** Copy 5 will be destroyed or disposed of according to instructions in the MWOFPP.

(8) The unit MWO coordinator will stay in daily contact with the MWO application team leader to ensure all applicable equipment scheduled for modification is modified. The unit MWO coordinator will use the property book list to ensure all applicable equipment is modified before the MWO team is released.

(9) The Commander, 200th Theater Support Command Materiel Management Center (200th TSC MMC), will send requests for exceptions to the policy in (1) through (3) above, with justification, to the proponent office with a recommendation to approve or disapprove the request.

(10) The unit MWO coordinator will ensure the MWO team is not denied access to the shop during training holidays, physical training, or other activity without first coordinating with the MWO team leader. Lockouts waste time and money.

(11) When more than one MWOFPP is being coordinated for the same item of equipment in a calendar year, the 200th TSC MMC will negotiate with each sponsoring agency to combine an agency's MWO into blocks. Use of the block-modification concept will reduce disruption of tactical units.

(12) When an item of equipment or component missed modification during the MWO application period, the 200th TSC MMC will report the omission to the sponsoring agency and ask the agency to arrange to apply the MWO.

(13) When application of the MWO changes the NSN, serial number, or registration number of an item requiring DA Form 2408-9, the CFT applying the MWO will prepare DA Form 2408-9 according to TM 738-750, paragraph 5-6c(9). The CFT applying the MWO will distribute DA Form 2408-9 as directed in the MWOFPP or as follows:

**(a) NMP Copy (#1).** Copy 1 will be sent to the Logistics Support Activity, USAMC (AMXLS-RRM), Redstone Arsenal, AL 35898-7466, within 30 days after the report date.

**(b) Control Copy (#2).** Copy 2 will be given to the property book officer (PBO) when clearing the unit. After the PBO uses copy 2 to adjust property accountability records, it will be used or disposed of according to local command directives.

**(c) Log Book Copy (#3).** Copy 3 will be given to the unit that owns the modified equipment before clearing the unit. This form will be kept in the logbook binder with the corresponding permanent logbook copy of the acceptance, gain, or transfer report.

### **c. Communication Security (COMSEC) and Controlled Cryptographic Item (CCI) Equipment.**

(1) The 5th Signal Command will apply all using-unit, direct support (DS), and general support (GS) maintenance emergency, urgent, and routine MWOs on COMSEC equipment and CCI in USAREUR, regardless of the time required to apply the MWO and level of maintenance. This authority cannot be delegated to non-5th Signal Command using and support maintenance activities.

(2) When 5th Signal Command does not have the capability or capacity to apply COMSEC and CCI MWOs and the MWOFPP does not offer to apply the MWO by CFT, the 5th Signal Command MWO program coordinator will write it into the plan and process the MWOFPP within the times specified in this appendix for nonaeronautical equipment and components (b above).

(3) When 5th Signal Command agrees to apply the MWO, it will indicate in the MWOFPP where the sponsoring agency will ship the MWO kits.

(4) When 5th Signal Command cannot apply or manage application of an MWO, it will return the MWOFPP with justification to the USAREUR Program Coordinator within 30 calendar days after receipt.

#### **K-4. RESPONSIBILITIES**

a. The USAREUR G4 (AEAGA-MD-P, DSN 370-8282) has general staff supervision of the MWO Program in USAREUR.

b. The Commander, 200th TSC MMC, is the USAREUR MWO PM.

c. The sponsoring agency of an MWO is responsible for the application of mandatory MWOs. AR 750-10 defines “sponsoring agency” as The Surgeon General, the Corps of Engineers, the United States Army Communications Command, and the United States Army Materiel Command (USAMC).

d. The USAMC-E will—

(1) Ensure PEOs, PMs, sponsoring agencies, and CONUS contractors coordinating or applying MWOs have a theater clearance from USAMC-E to visit the theater. Travel clearances must be coordinated with the USAREUR MWO PM (200th TSC MMC (AERLA-MMC-TAD)).

(2) Host, chair, and coordinate the USAREUR-USAMC Annual Modification Workshop with USAMC major subordinate commands (MSCs), USAREUR MSCs and tenant units, and the USAREUR MWO PM. USAMC- E will publish minutes of the workshop.

(3) Help USAMC MSCs and the USAREUR MWO PM solve MWO problems.

e. USAMC MSCs (sponsoring agencies) will—

(1) Coordinate MWOFPPs for USAREUR equipment and components with the USAREUR MWO PM.

(2) Publish and distribute letters of notification (LONs), memorandums of notification (MONs), and MWOFPPs before negotiating MWO applications.

(3) Give the USAREUR MWO PM 75 calendar days after the date of receipt to complete negotiation of MWOFPPs and 120 calendar days for revalidation.

(4) Ship MWO kits for aeronautical equipment to the Coleman Barracks storage area and kits for nonaeronautical equipment to the USAMC-E at the Germersheim storage area.

(5) Prepare documents and brochures listing planned modifications by fiscal year for distribution during the USAREUR-USAMC Annual Modification Workshop. All MWOFPPs that will be revalidated or negotiated during the workshop will be provided to the USAREUR MWO PM 75 to 120 calendar days before the workshop.

(6) On request, provide information to the USAREUR MWO PM for each MWO to help determine when a specific MWO has or has not been applied. This information will include a brief description, end item or component noun nomenclature, model number, national stock number (NSN), and serial-number range.

f. The Commander, 200th TSC MMC, will—

(1) Be the USAREUR MWO PM.

(2) Appoint a USAREUR MWO coordinator in writing to handle MWO actions for USAREUR. The Commander, 200th TSC MMC, will provide the coordinator’s name, telephone number, and office symbol to the USAMC-E MWO coordinator and to MWO sponsoring agencies.

(3) Coordinate MWOFPPs and return them to the proponent within 75 calendar days from receipt date.

(4) Operate and control the USAREUR MWO Program.

(5) Receive and process MWO validation listings with USAREUR commands and return them to the proponent within 120 calendar days from receipt date (AR 750-10).

(6) Establish MWO application priorities in coordination with the USAREUR G3 (AEAGC-FMD) and establish an MWO application schedule.

(7) Sign MWOFPs to indicate USAREUR acceptance of terms and conditions, or present alternative terms and conditions.

(8) Coordinate with USAREUR MWO program coordinators (g(2) below) to ensure MWO applications (DA Form 2407) or the application team's monthly production reports are completed and sent promptly.

(9) Ensure the USAREUR MWO program coordinator represents USAREUR at the USAREUR-USAMC Annual Modification Workshop.

(10) Receive the MWO advance information LON and MON from the applicable commodity command and determine applicability, advance implementation planning, and MWO kit requirements. The Commander, 200th TSC MMC, will notify the MWO proponent within 14 calendar days when MWOFPs are received.

(11) Validate MWOFPs and determine USAREUR MWO application requirements for end items or components (based on automated asset files, when available) or require inventory and reporting action from using units to establish MWO application requirements.

(12) Ensure that equipment in USAREUR-owned stocks is included in the MWO requirements and that unmodified equipment is not introduced into USAREUR after application of the MWO has started.

(13) Include operational readiness float (ORF) in MWO requirements.

(14) Ensure that equipment undergoing repair in USAREUR GS maintenance activities is included in MWO requirements.

(15) Help commands implement the MWO Program and comply with the provisions of this appendix.

(16) Send LONs, MONs, and MWOFPs for COMSEC and CCI equipment to 5th Signal Command for action.

(17) Send requests for exception to the policy in paragraph K-3 to the USAREUR G4 (AEAGD-MD-P), Unit 29351, APO AE 09014-9351. The request must include a justification and a recommendation to approve or disapprove the request.

(18) GS maintenance activities may apply MWOs when it is within their organic capability and capacity and when approved by the USAREUR G4 (AEAGD-MD-P). Requests for exception to USAREUR MWO policy in paragraph K-3 will be sent to the USAREUR G4 (AEAGD-MD-P), Unit 29351, APO AE 09014-9351. When requesting an exception, the GS maintenance activity will include the information in figure K-1, which will be used in the decision-making process.

g. Commanders at all levels will—

(1) Implement the MWO program in their subordinate units.

(2) Appoint an MWO program coordinator in writing to manage the MWO program in their commands. Commanders will provide the coordinator's name, telephone number, and office symbol to the USAREUR MWO coordinator (200th TSC MMC (AERLA-MMC-TAD), Unit 23203, APO AE 09263-3203).

(3) Ensure each subordinate commander (division, brigade, battalion, and using unit) appoints an MWO coordinator in writing to manage unit MWO programs.

(4) Distribute MWO information to subordinate units. On request, commanders will help the USAREUR MWO Program Coordinator determine MWO requirements. When possible, the property book, not maintenance records, will be used to initially determine MWO requirements. This includes identifying and reporting all items by U.S. Army registration number or serial number (or both) requiring modification according to the applicable MWOFp.

| <b>ESTIMATED COST BREAKDOWN OF EXPENDITURES</b>   |      |
|---|------|
| 1. Expenditures required:   |      |
|   | Cost |
| a. Manhours direct labor cost:  |      |
| b. Overhead direct expense:   |      |
| c. Consumable material cost:  |      |
| d. Transportation (equipment and personnel):  |      |
| e. Total estimate cost per item to be modified:   |      |
| f. Total items to be modified:  |      |
| g. Total estimated cost for modifying all items:  |      |
| <b>NOTE: Do not include the cost of military labor.</b>                                   |      |
|   | FSN  |
| 2. Provide the fiscal station number (FSN) for reimbursement.                             |      |
| <b>NOTE: The FSN can be obtained from the local resource management or budget office.</b> |      |

**Figure K-1. Format for an Estimated Cost Breakdown of Expenditures**

(5) Help the USAREUR MWO Program Coordinator review and finalize the MWOFPP. This assistance will include approving a primary and alternate MWO application date and planning and implementing possible standdown of units or equipment to ensure MWOs are applied expeditiously and effectively.

(6) Participate in preparing the MWO application schedule with the USAREUR MWO Program Coordinator, 200th TSC MMC equipment managers, and representatives from depot or contractor application teams.

(7) Ensure subordinate units comply with DA Form 2407 reporting requirements as specified in the MWOFPP.

(8) Have subordinate MWO coordinators attend all MWO workshops, in-process reviews, and application schedule-coordination and schedule-preparation meetings.

h. Commanders of using units will—

(1) Appoint a using-unit MWO coordinator.

(2) Ensure MWO application dates are included on the unit-training schedule.

(3) Comply with MWOFPPs.

(4) Ensure the unit MWO coordinator helps the MWO team leader and maintain daily contact with the team leader until all equipment in the unit requiring modification has been modified.

(5) Ensure the MWO application team receives the logistics support agreed to in the MWOFPP and has reasonable access to the shop area.

i. The Commanding General, 5th Signal Command, will—

(1) Apply, record, and report the application of MWOs to COMSEC equipment and CCI unique to 5th Signal Command.

(2) When applicable, apply, record, and report the application of MWOs to COMSEC equipment and CCIs in USAREUR commands.

j. Non-USAREUR organizations will designate an MWO program coordinator for equipment receiving supply and maintenance support. Non-USAREUR organizations will comply with the modification control program requirements that apply to USAREUR commands.

#### **K-5. PROCEDURES**

Application of MWOs will begin when—

a. The MWOFP has been coordinated (signed by the sponsoring agency and the 200th TSC MMC commander or a designated representative).

b. At least 50 percent of the application kits are on hand. The theater will not incur any second-destination transportation costs associated with MWO application. The unit with equipment requiring modification, however, may use organic transportation assets to transport MWO kits on request of the application team and approval of the unit commander.

#### **K-6. MODIFICATION RECORD**

a. Commanders at every level will maintain and record MWO applications on DA Form 2408-5 for the equipment specified in DA Pamphlet 738-750, paragraph 5-5, and DA Form 2408-5, MWO column, table E. Units with automation-equipment support can use printouts or automated forms instead of the paper copy of DA Form 2408-5.

b. Report the application of MWO kits on COMSEC equipment according to DA Pamphlet 738-750, chapter 8.

#### **K-7. THE MODIFICATION MANAGEMENT INFORMATION SYSTEM (MMIS)**

a. The USAREUR G4 implemented the MMIS on 11 September 1999. USAREUR MWO coordinators at all levels are required to get a user identification (ID) and password and become familiar with the MMIS. The USAREUR G4 will notify field units when materiel developers finish posting applied MWO to the MMIS. This will assist MWO coordinators in MWO management.

b. The MMIS gives commanders, MWO coordinators, motor officers, maintenance warrant officers, motor sergeants, equipment inspectors, USAMC logistics assistance representatives (LARs), and staff personnel with access to the Internet the on-line ability to check the status of MWOs for aviation and ground equipment from any location.

c. Using-unit and support-maintenance personnel are able to sign-in on MMIS using a personal computer and determine the overall MWO status of one or more items of equipment in a unit by unit identification code (UIC) and equipment NSN, model number, and serial number.

d. The MMIS allows users to determine MWOs that—

(1) Apply to a particular piece of equipment, including DA funding status.

(2) Need to be applied.

(3) Have been applied.

e. Additionally, the MMIS provides automated templates to be used by USAMC materiel developers and equipment commands for drafting and staffing MWO documents. MWO specifications and MWOFPs are also included.

f. HQDA publishes MMIS policy and procedures in AR 750-10.

g. Equipment developers are in the process of posting completed MWOs to the CONUS MMIS database.

h. A MMIS user ID and password are required. A user ID and password can be obtained at <https://www.mmis.army.mil>. After the user has completed the log-in request form, a user ID and password will usually be provided within 48 hours.

**APPENDIX L  
MAINTENANCE ASSISTANCE AND INSTRUCTION TEAM PROGRAM**

**L-1. POLICY**

a. HQ V Corps will provide maintenance assistance and instruction team (MAIT) service to the following units in Germany:

- (1) V Corps units (except for the 1st Armored Division and 1st Infantry Division).
- (2) Seventh Army Training Command.
- (3) United States Army Medical Activity, Heidelberg.
- (4) United States Army Medical Activity, Würzburg.

b. Commanders of the following commands will provide MAIT services to their assigned and attached units as prescribed in the basic AR and this supplement:

- (1) 21st Theater Support Command, including the Landstuhl Regional Medical Center, on request.
- (2) United States Army Southern European Task Force (USASETAF), including non-USASETAF personnel and medical, postal, and finance units in Italy.
- (3) 1st Infantry Division.
- (4) 1st Armored Division.

c. The 1st Personnel Command (including postal activities) and 266th Finance Command (including units and detachments) in Germany will coordinate with the nearest MAIT (a and b above) for assistance and instruction (A&I).

d. The non-USAREUR commands in (1) through (3) below may coordinate with the nearest MAIT for A&I support on maintenance, supply, and readiness problems. Non-USAREUR units will not receive MAIT-programmed visits. Non-USAREUR units may request reimbursable A&I from the supporting MAIT.

- (1) 5th Signal Command.
- (2) 66th Military Intelligence Group.
- (3) 7th Special Operations Support Command.

e. Commanders should report systemic problems in maintenance management that cannot be resolved by MAITs to the USAREUR G4 (AEAGD-MD-P), Unit 29351, APO AE 09014-9351, for resolution.

f. The MAIT will not provide A&I services to tables of distribution and allowance (TDA) area support groups (except the 29th Support Group and base support battalion installation materiel maintenance activities (IMMAs)). The USAREUR G4 may be contacted for A&I support (DSN 370-6915).

g. To preserve an atmosphere of trust between the MAIT and supported units, the MAIT will be clearly identified in mission and function statements and regulations. Personnel assigned to a MAIT should not participate in command inspections, annual general inspections, annual training evaluations, spot checks, roadside inspections, command logistics review teams, or any other assistance or evaluation programs.

h. MAITs will ensure that units are aware of—

- (1) The Department of Defense Phoenix Award.
- (2) The Chief of Staff, U.S. Army, Award for Maintenance Excellence.

- (3) The Supply, Maintenance, and Assessment Review Team (SMART) Program.
- (4) Quality Deficiency Reports (AR 702-7-1).
- (5) The Logistics Assistance Program (AR 700-4).
- (6) USAREUR Tactical Vehicle Brake-Testing Machine Program (app U).
- (7) USAREUR Modification Work Order Program, including the Modification Management Information System (app K).
- (8) The Army Oil Analysis Program (app N).
- (9) Automotive battery maintenance responsibilities for vehicle operators, vehicle crews, and unit maintenance repairers.
- (10) Scheduled services (including training and certification in preventive maintenance checks and services (PMCS) and associated user-level maintenance programs).
  - i. Unit commanders may request A&I by contacting their MAITs. Commanders should select areas that require A&I. Higher headquarters may direct a MAIT to visit a specific unit. A directed visit is not an inspection.
  - j. MAITs will send quarterly reports to the USAREUR G4 (AEAGD-MD-P) according to the basic AR, paragraph 7-14h(24)(f), and will include a general summary of systemic problems. Reports must arrive at USAREUR G4 by 30 April, 31 July, 31 October, and 31 January each year.

**L-2. RESPONSIBILITIES**

- a. The USAREUR G4 (AEAGD-MD-P) will—
  - (1) Oversee the USAREUR MAIT Program.
  - (2) Ensure a representative from the Maintenance Policy and Programs Branch, Maintenance Division, Office of the G4, HQ USAREUR/7A, visits MAIT sites at least once a year to ensure the standards in AR 750-1 are understood and followed.
- b. Commanders of units in subparagraphs L-1a(1) through (4) and L-1b(1) through (4) will—
  - (1) Establish a MAIT program to support each assigned and attached unit and other units designated by the USAREUR G4.
  - (2) Allocate money and personnel for MAIT operations.
  - (3) Ensure MAIT personnel attend Combined Arms Training Center courses.

**L-3. MAIT POCs**

The following are MAIT POCs for A&I:

- a. V Corps: V Corps (AETV-MAIT), Unit 29355, APO AE 09014-9355 (DSN 370-5466/4195, e-mail: g4cfmaitchief@hq.c5.army.mil).
- b. 21st TSC: 21st TSC (AERLO-L), Unit 23203, APO AE 09263-3203 (DSN 484-7436).
- c. USASETAF: USASETAF (AESE-GL), Unit 31401, Box 1, APO AE 09630-1401 (DSN 634-7881).
- d. 1st Armored Division: 1st Armored Division (AETV-THD-A), Unit 24309, APO AE 09252-4309 (DSN 490-7504).
- e. 1st Infantry Division: 1st Infantry Division (AETV-BGD), Unit 26222, APO AE 09036-6222 (DSN 350-7127).

**APPENDIX M**  
**USAREUR CONTRACT MAINTENANCE SUPPORT POLICY**

**M-1. REFERENCES**

- a. Federal Acquisition Regulation.
- b. Military Handbook 245D (MIL-HDBK-245D), Preparation of Statement of Work (SOW).
- c. AR 700-4, Logistics Assistance.
- d. AE Regulation 10-5, HQ USAREUR/7A Organization and Responsibilities.
- e. USAREUR Regulation 12-16, Mutual Logistic Support Between the U.S. Army and Governments of Eligible Countries, NATO Subsidiary Bodies, and United Nations Organizations.
- f. USAREUR Regulation 715-2, USAREUR Acquisition Regulation and USAREUR Acquisition Instructions (UAI).
- g. USAREUR Regulation 750-10, USAREUR Base Operations Maintenance Policy.
- h. USAREUR Pamphlet 715-5, Customer Acquisition Guide.

**M-2. APPLICABILITY**

The policy in this appendix applies to USAREUR major subordinate and tenant commands (AE Reg 10-5, app A) in the central region (Germany, Belgium, the Netherlands, Luxembourg, and Italy).

**M-3. POLICY**

- a. Requests for USAREUR contract maintenance support must be sent to the Theater Logistics Maintenance Contract Management Office (TLMCMO) for maintenance support of tactical air and ground support equipment exceeding the organic capability or capacity of the requesting unit and above the monetary limit of \$50,000, including all follow-on requirements.
- b. Contract maintenance support applies to all tactical equipment authorized by modification tables of organization and equipment (MTOEs), tables of distribution and allowances (TDAs), or modification tables of distribution and allowances (MTDAs), or issued as a temporary loan.
- c. For the purpose of this policy, the term “contract maintenance support” pertains to organizational maintenance, aviation unit maintenance (AVUM), direct support (DS) maintenance, aviation intermediate maintenance (AVIM), and general support (GS) maintenance. Chemical agent resistant coating (CARC) painting of vehicles and equipment is a subelement of care and preservation and considered a maintenance task.
- d. The 21st Theater Support Command (21st TSC) is designated as the USAREUR central POC, approval authority, and proponent for maintenance contracts in the central region valued at over \$50,000 (including all follow-on requirements) for the equipment and levels of maintenance addressed in subparagraphs a through c above. The 21st TSC may elect one of several options:
  - (1) Assign maintenance tasks to in-house repair facilities.
  - (2) Consolidate contract workload requirements for execution through an established umbrella contract:
    - (a) Umbrella contracts or indefinite delivery/indefinite quantity (ID/IQ) orders for multiple customer units in Germany will be awarded by the United States Contracting Command, Europe (USACCE), Wiesbaden Regional Contracting Office (RCO) and Seckenheim RCO. The General Support Center, Europe (GSC-E), will coordinate their umbrella purchase request and commitment (PR&C) requirements with the Wiesbaden and Seckenheim RCO contracting activities to avoid duplication of contract coverage.
    - (b) Umbrella contracts or ID/IQ orders for multiple customer units in Belgium, the Netherlands, Luxembourg, or Italy will be awarded by the appropriate USACCE RCO supporting that particular geographic area.

(c) Delivery orders against existing DOD umbrella contracts (for example, Tinker Air Force Base, Dyncorp) that are not executed by USACCE for maintenance support in the central region.

(3) Grant an exception to this policy on an individual basis for the customer unit to submit a specific requirement to the appropriate USACCE RCO, if the time constraints in paragraph M-4c(3) cannot be met.

e. The repair standards for vehicles and equipment will be as cost effective as possible without compromising customer service support. The decision on where to perform repairs or who will accomplish the work must result in the best value for the customer and not be based solely on the lowest cost.

(1) Workloading of USAREUR in-house maintenance facilities will not be at the expense of the customer units (for example, costs will not exceed those for similar services available from reputable contractors) and the same level of service will be provided. There will still be pickup and delivery of equipment and on-site repairs.

(2) To the maximum extent possible, organizational maintenance support and application of maintenance work orders will be accomplished on-site unless the requesting unit approves otherwise.

f. All tactical vehicles and equipment will be repaired to a safe and serviceable standard as set forth in their respective technical manuals.

#### **M-4. RESPONSIBILITIES**

a. The USAREUR G4 will—

(1) Oversee USAREUR contract maintenance support policy and procedures.

(2) Send requests for the establishment or amendment of any of the following documents to the USAREUR G8 (AEAGF-IA), Unit 29351, APO AE 09014-9351 (DSN 370-7918).

(a) Interservice support agreements (ISSAs).

(b) Memorandums of agreement (MOAs).

(c) Memorandums of understanding (MOUs) with other U.S. military organizations (for example, United States Army Materiel Command (USAMC)).

(d) Acquisition and cross-servicing agreements (ACSAs) with host nations to obtain additional military, contractor, and host-nation maintenance support, as required.

(3) Arbitrate and provide final decision on any disputes between customer units and the 21st Theater Support Command (21st TSC) over the source or location of maintenance support.

b. The 21st TSC will—

(1) Operate a TLMCMO with existing resources.

(2) Provide a memorandum of instruction (MOI) to USAREUR commands and units under the operational control and oversight of USAREUR in the central region with procedures and POCs for requesting contract maintenance support.

(3) Send requests through the USAREUR G4 to the USAREUR G8 for the establishment or amendment of ISSAs, MOAs, and MOUs with other U.S. military organizations or ACSAs with host nations to obtain additional military, contractor, and host-nation maintenance support, as required.

(4) Ensure maintenance support provided by in-house maintenance facilities is of the same quality or exceeds the quality of service provided by contracted sources. If acceptable maintenance support services are available at a better value to the customer than can be provided by in-house maintenance facilities, these maintenance support services will be out-sourced.

(5) Send any disputes between customer units and the GSC-E over the source or location of maintenance support to the USAREUR G4 (AEAGD-MD-P), Unit 29351, APO AE 09014-9351 (DSN 370-8600), for arbitration and final decision.

c. The GSC-E, under the direction of the 21st TSC, will—

(1) Provide a standing operating procedure to customer units.

(2) Provide central management for all maintenance-support contracts established under the guidelines of this policy, the policy of the USACCE, and USAREUR Regulation 715-2.

(3) Review, validate, analyze, and process customer unit requests for maintenance support within 5 workdays after receipt during normal operations (within 72 hours after receipt during contingency operations) to determine appropriate action (including verification of whether or not in-house maintenance capability and capacity is available). Take the following actions as appropriate:

(a) Conduct a cost analysis to determine the best source and location of the maintenance support to be provided. The cost analysis will include all expense elements related to the performance of the maintenance support, including transportation to and from the maintenance facility and temporary duty costs for on-site repair.

(b) Provide a copy of the cost analysis to non-21st TSC customer units for review before a decision is made to provide the support with in-house maintenance resources.

(c) Workload organic in-house maintenance facilities to provide the required maintenance support.

(d) Send requests to the appropriate USACCE RCO for placement of orders for maintenance support against contracts executed by the USACCE with DOD umbrella contractors, other open-market commercial contractors, or the NATO Maintenance and Supply Agency (NAMSA).

(e) Place orders for maintenance support under existing DOD umbrella contracts (for example, Tinker Air Force Base, Dyncorp) that were not executed by USACCE.

(f) Send requests through the 21st TSC, Unit 23203, APO AE 09263-3203, and USAREUR G4 (AEAGD-MD-P) to the USAREUR G8 (AEAGF-IA) to establish or amend ISSAs (USAREUR Reg 1-7), MOAs, or MOUs with other U.S. military organizations; or ACSAs with host nations to obtain additional military, contractor, or host-nation maintenance support, as required.

(g) Coordinate a statement of work (SOW) with USAMC theater senior command representatives (SCRs) (for example, the United Army Aviation and Missile Command (AMCOM), United States Army Armament and Chemical Acquisition Logistics Activity, United States Army Communications and Electronics Command, and the United States Army Tank-Automotive and Armaments Command), as appropriate. The SCR will review SOW requirements to ensure compliance with applicable safety and sustainment policy, procedures, and guidelines, within 3 workdays after receipt for support of normal operations (within 24 hours of receipt for support of contingency operations).

(h) When it is determined that contract-maintenance action will be pursued, nominate personnel to serve as the contracting officer's representative (COR) and alternate contracting officer's representative (ACOR) to work with the USACCE RCO, the customer unit POC, and the contractor.

1. The COR will be appointed in writing by the contracting officer. The ACOR will be appointed in writing by the COR.

2. The COR and ACOR will attend all training courses as directed and provided by the USACCE.

3. The duties of the COR and ACOR will be the primary responsibilities of the individual so designated.

4. The GSC-E, the COR, the ACOR, and the customer unit POC will define the customer's complete repair requirements for development of the SOW.

5. The COR or ACOR will address customer concerns to the contractor, resolve contractor quality deficiencies, and work with the contractor and customer unit on questions about equipment turn-in, equipment pickup, and other related technical or administrative issues.

6. All recommended changes to the SOW must be sent to the contracting officer. The COR or ACOR is not authorized to communicate additional requirements or changes to the contract SOW directly to the contractor.

7. The COR or ACOR may train and appoint quality assurance representatives, inspectors, or other personnel to help the COR or ACOR with technical surveillance. These technical surveillance personnel do not have acquisition authority and cannot take direct action with the contractor. They will only review the contractor's performance and report their findings to the COR or ACOR. The COR or ACOR has authority to take corrective action.

(i) Nominate enough personnel to serve as quality assurance representatives to inspect and ensure the contractor's products and services are in compliance with the performance standards specified in the contract quality assurance plan when contract maintenance support is neither performed on-site nor within close proximity to the customer unit.

(j) Develop and send recommendations for a theater-level, umbrella PR&C through appropriate resource-management channels to the USAREUR G8. Consolidated maintenance support for multiple units under an umbrella contract will be awarded by USACCE, as appropriate.

(k) Ensure contracts for commercial DS-, AVIM-, and GS-level maintenance include provisions for collecting DA Form 2407 or DA Form 5990-E maintenance data from the contractor, when cost effective. This data will be included in reports to the Work Order Logistics File (WOLF) at Logistics Support Activity according to the basic AR, paragraph 4-18c.

(l) Ensure that repairs are within the maintenance expenditure limit, as published in technical bulletins or approved waivers for all commodities.

(m) Be responsible for cost and workload accounting.

(n) Send disputes between customer units and the GSC-E over the source or location of maintenance support through the Support Operations, 21st TSC, to the USAREUR G4 (AEAGD-MD-P), Unit 29351, APO AE 09014-9351, for arbitration and final decision.

d. USAREUR MSCs and tenant commands in the central region will—

(1) Ensure requirements for maintenance support are sent through appropriate command channels (for example, through the supporting S4, materiel management center, G4, directorate of logistics) to the TLMCMO (AERSC-ET), CMR 429, APO AE 09054-0429 (DSN 483-8160, fax 483-7773/8757). Unit requests for maintenance support of contingency operations will be sent electronically.

(2) Send requirements to the GSC-E for maintenance support exceeding the organic capability or capacity and above the monetary procurement limit of \$50,000, including all follow-on requirements for the equipment and levels of maintenance explained in subparagraphs M-4a through c. Unit submissions for maintenance support must include the following:

(a) National stock number (NSN).

(b) Nomenclature (including model number).

(c) Quantity.

(d) Extent of repair or type of service required (for example, preventive maintenance checks and services (PMCS), organizational maintenance or AVUM, DS maintenance, AVIM, or GS maintenance).

(e) Estimated required delivery date. (Indicate if request is for contingency operations.)

(f) Funded PR&C for non-21st TSC units or a DD Form 448 (MIPR) for 21st TSC units, as required.

(g) A statement as to whether or not the customer unit wants to review the GSC-E cost analysis before the unit's requirement is sent to in-house maintenance facilities (applicable only to non-21st TSC units).

(h) Unit POC and telephone number.

(3) Appoint a knowledgeable and technically capable POC or nominate an individual to serve as the quality assurance evaluator for maintenance support contracted by the USACCE. The customer unit POC will work with the COR or ACOR on issues relating to equipment turn-in, pickup, quality deficiencies, and customer concerns regarding costs, scheduling, and contractor performance. The customer unit POC normally does not have the same acquisition authority as the COR or ACOR and will not be designated as an ACOR by the contracting officer. When a requirement for a customer unit ACOR is identified—

(a) The ACOR will be appointed in writing by the COR.

(b) The ACOR will attend all training courses as directed and provided by USACCE. The ACOR must be technically qualified, trained, and certified to the same level as the COR.

(c) The duties of the ACOR will be the primary responsibilities of the individual so designated.

(d) All recommended changes to the SOW must be submitted through the COR to the contracting officer. The ACOR is not authorized to communicate additional requirements or changes to the contract SOW directly to the contractor. The ACOR is authorized to perform all duties and responsibilities in the absence of the COR.

(4) Nominate an adequate number of personnel to serve as quality assurance representatives. These personnel will inspect and ensure the contractor's products and services are in compliance with the performance standards specified in the contract quality assurance plan as required when contract maintenance support is either performed on-site or within close proximity of the customer unit.

(5) Provide adequate and suitable maintenance space and contract-defined Government furnished property and services for use by the contractor when mutually agreed to between the customer units, GSC-E, and contracting officer.

(6) Appeal any disagreement with the GSC-E over the source or location of maintenance support to the USAREUR G4 (AEAGD-MD-P), Unit 29351, APO AE 09014-9351 (DSN 370-8600), for arbitration and final decision.

#### **M-5. EXCEPTION TO POLICY**

a. USAREUR MSCs and tenant commands operating in the Operation Joint Forge and Operation Joint Guard areas of responsibility will send requirements for tactical maintenance-support contracts through appropriate logistics channels (for example, S4, materiel management center, G4) to the applicable activities in (1) through (5) below. These activities have a standing board that meets weekly to quickly review and process maintenance and other contract requirements.

(1) In Bosnia and Herzegovina (in the U.S. sector, Multinational Division, North (MND-N)), requirements for maintenance support will be sent to the Joint Acquisition Review Board (JARB), Task Force Eagle Base Camp Coordinating Agency, Tuzla Main, Bosnia and Herzegovina (DSN 762-2707/4608).

(2) In Croatia, Hungary, Bosnia and Herzegovina (all areas outside the U.S. sector, MND-N), requirements for maintenance support will be sent to the JARB, National Support Element, Office of the Deputy Chief of Staff, Logistics, Tazsar Support Base, Hungary (DSN 760-2229/2225).

(3) In Kosovo and Macedonia, requirements for maintenance support will be sent to the JARB, Task Force Falcon (TFF), DSN 406-563-3540, or TFF (Rear) (DSN 779-3156/3173), as appropriate.

(4) Maintenance requirements to support the Port of Thessaloniki, Greece, will be sent to the JARB, 21st TSC, Support Operations, Kaiserslautern, Germany (DSN 484-7251/7252/7286).

(5) In other areas required to support contingency operations, including units participating in training exercises while deployed to other areas outside the central region, requirements for maintenance support will be sent according to the applicable operation order or exercise directive to the USAREUR G4 (AEAGD-MD-P), Unit 29351, APO AE 09014-9351 (DSN 370-6609/6767).

b. Contract maintenance support requirements for equipment authorized by common tables of allowances, nonappropriated fund equipment, medical equipment, and other items listed on the installation property book will be sent according to MIL-HDBK-245D.

## **APPENDIX N**

### **ARMY OIL ANALYSIS PROGRAM**

#### **N-1. REFERENCES**

- a. AR 700-132, Joint Oil Analysis Program (JOAP).
- b. DA Pamphlet 738-750, Functional Users Manual for The Army Maintenance Management System (TAMMS).
- c. DA Pamphlet 738-751, Functional Users Manual for The Army Maintenance Management System—Aviation (TAMMS-A).
- d. Technical Bulletin (TB) 43-0106, Aeronautical Equipment Army Oil Analysis Program (AOAP).
- e. TB 43-0211, Army Oil Analysis Program Guide for Leaders and Users.
- f. Technical Manual 38-301 (volumes 1 through 4), Joint Oil Analysis Program Laboratory Manual.

#### **N-2. GENERAL**

a. DA policy requires units with aeronautical and selected nonaeronautical equipment to participate in the Army Oil Analysis Program (AOAP). It is a mandatory maintenance tool. AOAP requests (DD Form 2026 (manual form) and DA Form 5991-E (automated form)) are important because they are used to prepare and support Army appropriation requirements for the Office of the Secretary of Defense and for Congress.

b. The AOAP for nonaeronautical equipment requires oil and oil filters to be changed based on a laboratory analysis of the oil sample, rather than on calendar days, operating hours, or miles established by the applicable lubrication order (LO).

c. To help unit personnel, most engines and transmissions have factory-installed oil sampling valves (national stock number (NSN) 4820-00-845-1096) to simplify taking oil samples.

d. The AOAP has reduced expenditures for USAREUR oil and oil filters by 90 percent. Unit payback comes in terms of stretching out new oil and oil filters, saving time and work in changing oil and filters, and collecting and disposing of waste oil and filters as hazardous material. Without AOAP, for example, the LO requires the using unit to replace the oil and oil filters of the—

(1) M109A6 Howitzer every 75 days or 750 miles of operation, whichever comes first. The Howitzer's engine and transmission have a capacity of 27 and 48 quarts of oil, respectively and several oil filters.

(2) M939-series 5-ton truck engine every 6 months or 6,000 miles, and the transmission every 24 months or 24,000 miles, whichever comes first. The 5-ton engine's crankcase and transmission have a capacity of 23 and 27 quarts of oil, respectively, and several oil filters.

e. The AOAP, or the "on-condition oil and filter change program," is good for the environment. The AOAP reduces—

(1) The need to drill for and purchase new petroleum and the cost of refining petroleum into engine- and transmission-grade oil.

(2) The waste of oil and oil filters and their disposal requirements.

f. The AOAP alerts maintenance personnel when an expensive engine or transmission is worn, about to fail, or needs to be repaired or replaced to avoid untimely and catastrophic failure and costly repairs.

#### **N-3. OIL ANALYSIS LABORATORY LOCATIONS**

There are two approved AOAP laboratories in the European central region (Germany, Belgium, the Netherlands, Luxembourg, and Italy):

a. Mannheim Laboratory Center, Bamberg (Activity), (AERSC-MLC-BA) Unit 27535, APO AE 09139-7535 (DSN 469-8427/8424).

b. Mannheim Laboratory Center, Coleman Barracks, (AERSC-MLC) Unit 29702, Box 301, APO AE 09028-9702 (DSN 382-5288/4254).

#### **N-4. POLICY**

Two types of oil analyses are performed in USAREUR: one for nonaeronautical equipment and one for aeronautical equipment.

##### **a. Nonaeronautical Equipment.**

(1) Nonaeronautical equipment includes selected combat vehicles, tactical wheeled vehicles, materiel-handling equipment, engineer construction equipment, power generator sets, power units, and air compressors. DA Pamphlet 738-750 (tables 4-1 through 4-7) lists all the equipment that must be enrolled in the AOAP. Units will request AOAP services for required nonaeronautical equipment and components from the closest laboratory.

(2) Nonaeronautical equipment oil will be changed based on condition and as directed by the supporting laboratory analysis, rather than on calendar days, operating hours, or miles specified by LOs. There are four exceptions to this policy:

(a) Seasonal oil changes will continue to be made according to applicable LOs.

(b) Oil and oil filter changes on equipment under warranty will be made according to the manufacturer's warranty.

(c) When a unit is deployed and oil analysis service is not readily available, the unit maintenance officer will obtain AOAP support as specified in the applicable operation plan or operation order.

(d) Nonaeronautical equipment that does not require enrollment in the AOAP will have oil and oil filter changes according to the applicable LO.

(3) There are two oil-analysis requests in the Army Maintenance Management System: DD Form 2026, which is a manual form, and DA Form 5991-E, which is an automated form.

**b. Aeronautical Equipment.** Aeronautical equipment includes fixed and rotary-wing aircraft. TB 43-0106, appendix A, lists all aeronautical equipment that must be enrolled in the AOAP. Units will request AOAP services for required aeronautical equipment and components from the Director, USAREUR Mannheim Laboratory Center, Unit 29702, Box 301, APO AE 09028-9702. The Mannheim Laboratory Center is the only USAREUR laboratory with the capability of analyzing oil samples from Army aeronautical equipment.

**c. Requesting Support.** Units, with both nonaeronautical and aeronautical equipment enrolled in AOAP, will request AOAP support from a laboratory specified in paragraph N-3.

(1) Units and activities operating under a manual maintenance management system will use DD Form 2026 to request oil analysis.

(2) Units and activities operating under the Unit-Level Logistics System (ULLS) will use DA Form 5991-E to request oil analysis. DD Form 2026 may be used instead of DA Form 5991-E when the ULLS is inoperable or not available.

**d. Delinquency Goal and Standard.** Major command, division, brigade, and battalion-level commanders are encouraged to review unit AOAP performance in their review and analysis or similar program. USAREUR AOAP delinquency goals and standards for units with non-aeronautical and aeronautical equipment are as follows:

(1) The delinquency goal is to have no more than 2 percent of the equipment enrolled in the AOAP delinquent.

(2) The delinquency-rate standard is to have no more than 5 percent of the equipment enrolled in the AOAP delinquent.

(3) The enrollment standard requires 100 percent of the equipment to be enrolled in the AOAP.

### **e. The AOAP Achievement Award Program.**

(1) Units that achieve a 2-percent or less delinquency rate each month for the most recent consecutive 12 months are eligible to receive the Deputy Chief of Staff, G4, USAREUR, Certificate of Achievement. To receive the certificate, the unit AOAP coordinator must send a memorandum to the supporting laboratory (para N-3 above) stating that the unit has achieved the USAREUR 2-percent delinquency goal. Unit AOAP coordinators have 6 months from the date the unit achieved the 2-percent delinquency goal to send the memorandum to the supporting laboratory.

(2) The memorandum must include the complete military mailing address of the next higher headquarters, including its office symbol.

(3) The supporting laboratory will review and confirm the unit's achievement. Confirmation of the unit's achievement will be noted in a cover memorandum to the basic memorandum and sent to the USAREUR G4 (AEAGD-MD-P), Unit 29351, APO AE 09014-9351, within 30 days after receiving the basic memorandum.

(4) The USAREUR G4 (AEAGD-MD-P) will provide a signed Certificate of Achievement and cover memorandum within 30 days after receiving the supporting laboratory's confirmation memorandum. Both the certificate and the cover memorandum will be sent directly to the achieving unit with a courtesy copy to the unit's next higher headquarters ((2) above).

(5) The USAREUR G4 (AEAGD-MD-P) will keep a file copy of each Certificate of Achievement for 2 fiscal years from the date of issue.

### **N-5. RESPONSIBILITIES**

#### **a. Commanders at all levels will—**

(1) Implement the AOAP in participating units in their commands.

(2) Ensure their subordinate units appoint an AOAP monitor who has been properly trained and certified by the appropriate supporting laboratory (para N-3).

(3) Ensure every subordinate unit complies with USAREUR delinquency goal and standard (para N-4d) requirements.

(4) Appoint a command AOAP monitor to administer, control, and establish unit AOAP training objectives in their commands.

**NOTE:** Commanders will monitor using-unit AOAP delinquency-rate goals and standards through the Review and Analysis (R&A) Program or other similar program.

#### **b. Commanders of units owning or operating AOAP-designated equipment will—**

(1) Appoint a unit monitor to administer and control the program in the unit.

(2) Ensure that all AOAP-designated equipment and components are enrolled in the program.

(3) Ensure that oil samples are taken properly and accurately and submitted at prescribed intervals.

(4) Ensure maintenance personnel comply with laboratory recommendations and notify the AOAP laboratory using DA Form 3254-R within 5 days of maintenance accomplishment.

(5) Ensure every AOAP monitor is trained and certified by the supporting laboratory.

(6) Publish procedures to ensure the program is implemented and followed.

c. Unit AOAP monitors will—

- (1) Ensure maintenance personnel are properly instructed in the techniques of drawing oil samples from equipment components and in preparing either DD Form 2026 or DA Form 5991-E.
- (2) Review copies of DD Form 2026 and DA Form 5991-E for accuracy.
- (3) Ensure that laboratory recommendations are promptly followed.
- (4) Ensure that enough oil-sampling kits and related supplies are available in the unit.

d. Commanders of using units and direct support (DS) and general support (GS) maintenance units and activities will—

- (1) Perform authorized maintenance actions recommended by the AOAP laboratory on DA Form 3254-R.
- (2) Ensure maintenance actions taken are reported completely and accurately on DA Form 3254-R and sent to the supporting AOAP laboratory.

## **N-6. TRAINING**

a. The Mannheim Laboratory Center will train division, brigade, battalion, and using-unit AOAP monitors. AOAP monitors must—

- (1) Be familiar with general AOAP policy and procedures.
- (2) Know how to obtain sampling supplies and equipment.
- (3) Know how to properly take oil samples from assigned equipment enrolled in the AOAP.
- (4) Be able to train unit equipment operators in AOAP sampling procedures.

b. The Mannheim Laboratory Center offers the following training at the Mannheim laboratory on a nonreimbursable basis:

- (1) AOAP training for division- and brigade-level monitors: 1 day (8 hours).
- (2) AOAP training for battalion- and unit-level monitors: 2 days (16 hours).
- (3) Aeronautical AOAP training: 1/2 day (4 hours).

c. On-site training is available on request at no cost to the unit.

d. Training requirements must be coordinated with the Director, Mannheim Laboratory Center (DSN 382-5288/4254).

e. The unit AOAP monitor will provide about 2 hours of AOAP training on aeronautical-equipment oil samplers to personnel designated by the commander as oil samplers. Maintenance assistance and instruction team personnel certified by the Mannheim Laboratory Center may provide training.

(1) The unit AOAP monitor will train and certify unit oil samplers designated by the unit commander on how to properly take oil samples from equipment components and to accurately complete DD Form 2026 or DA Form 5991-E. The commander may designate the equipment operator or unit maintenance personnel as oil samplers.

(2) Training also will emphasize the safety aspects of the AOAP. Persons who take oil samples from equipment must be adequately trained and made aware of the dangers involved. Drawing oil from a hot component can result in spray or spillage of hot oil on the skin, causing serious burns. Taking samples from an operational component exposes the sampler to hot metal surfaces and moving parts, such as V-belts and cooling fan blades. Special care must be taken to prevent clothing from getting caught or coming in direct contact with these moving components. Persons taking oil samples should always wear safety goggles.

(3) After completing the training, the unit AOAP monitor will annotate section III of the individual's DA Form 348 with "Satisfactorily completed training in the AOAP according to the unit's AOAP training standing operating procedure" and sign the DA Form 348. The unit AOAP monitor will also annotate the "Other Records Section" of the corresponding OF 346 (or ULLS-G equivalent) with "AOAP Qualified (date qualified)" and initial it.

(4) The unit maintenance standing operating procedure will provide for the designation and training of oil samplers according to DA Pamphlet 750-35. Commanders may conduct AOAP training during Sergeants Time.

## **N-7. NONAERONAUTICAL EQUIPMENT PROCEDURES**

a. Units will maintain an adequate level of sampling supplies. DA Pamphlet 738-750, table 4-8, lists supplies required for sampling operations.

b. DD Form 2026 or DA Form 5991-E will be prepared for each sample sent. Units will complete the DD Form 2026 or DA Form 5991-E as specified in DA Pamphlet 738-750, chapter 4.

c. Oil samples and the completed DD Form 2026 or DA Form 5991-E will be placed in appropriate shipping or mailing containers. Units will handcarry or mail samples to the supporting laboratory.

d. Laboratories will—

(1) Conduct oil analysis tests and send results and recommendations to the submitting unit within 5 workdays.

(2) When oil analysis shows normal wear conditions or no contaminants and no corrective action required, indicate on the DD Form 2026 or DA Form 5991-E the date the oil was processed and the statement "Results Normal." The laboratory will return the DD Form 2026 or DA Form 5991-E by mail to the submitting unit for filing. Units will continue to use the oil and oil filters until otherwise notified by the laboratory.

(3) When oil analysis indicates a condition requiring another sample and analysis of the oil, immediately notify the submitting unit AOAP monitor by telephone or fax that another sample is required of the same oil taken under the same condition.

(a) The submitting unit will deliver the new sample within 5 workdays to the laboratory with a new DD Form 2026 or DA Form 5991-E. If the unit cannot provide the new sample within 5 workdays, the maintenance officer or representative will contact the laboratory chief to determine the risk of sustaining more damage if the equipment remains in service.

(b) When the unit requests, the laboratory will confirm the new sample requirement by annotating the DD Form 2026 or DA Form 5991-E with the words "Resample requested," entering the date processed, and returning the form to the submitting unit for filing.

(4) When oil analysis indicates a suspected dangerous or high wear metal concentration or a contaminated condition, the laboratory will immediately notify the submitting unit AOAP monitor and recommend action.

(a) The notification will be by telephone or fax. The laboratory will also make recommendations on DA Form 3254-R. Three copies of the DA Form 3254-R will be sent to the submitting unit with the original sample DD Form 2026 or DA Form 5991-E and four red-and-black, adhesive-backed AOAP labels.

(b) The owning unit will file the DD Form 2026 or DA Form 5991-E behind the DD Form 314 and keep the form until the laboratory returns the results from the next DD Form 2026 or DA Form 5991-E sent by the unit. Only the most recent DD Form 2026 or DA Form 5991-E should be kept on file. The submitting unit or support maintenance personnel will use AOAP labels to identify the defective component as an AOAP item when evacuation or removal is necessary.

(c) On notification, the submitting unit will immediately comply with the laboratory recommendation. When the laboratory recommends removing the equipment from service (do not operate) due to a potentially serious fault, the unit commander will place the equipment in a not mission capable (NMC) maintenance status until the maintenance action is completed. The equipment will be returned to service after the required repairs are completed or technical inspection by the unit maintenance officer or support maintenance personnel verify that continued use will not cause further damage to the component.

(d) When the laboratory recommends a unit maintenance action on DA Form 3254-R, the unit will take the maintenance action to correct the condition. The equipment is NMC until the maintenance action is completed (AR 750-1, para 7-2e(5)). After unit personnel have performed the laboratory-recommended inspection or maintenance action, they will complete the lower portion of DA Form 3254-R. Block 14 will be used to explain diagnostics performed, discrepancies found, and actions taken to return the component to a serviceable condition. The unit will return the DA Form 3254-R to the laboratory within 5 workdays after maintenance is completed.

(e) When higher-level maintenance is required, the submitting unit will send the equipment to the supporting DS or GS maintenance with two copies of the DA Form 3254-R, the appropriate maintenance request (ULLS DA Form 5990-E or DA Form 2407), and four red-and-black, adhesive-backed AOAP labels. If maintenance personnel do not have AOAP labels, they should contact the supporting laboratory.

e. DS and GS maintenance will be as follows:

(1) DS and GS maintenance units and activities will accept items for repair when recommended by the AOAP laboratory on DA Form 3254-R. The DA Form 3254-R is the authorization for acceptance.

(2) Support maintenance personnel (not laboratory personnel) will determine when a component will be repaired or replaced. When a component is not repairable at DS maintenance and must be evacuated and turned-in to a higher maintenance level, the four red-and-black, adhesive-backed AOAP labels that accompanied the laboratory DA Form 3254-R will be used to mark the component. The labels show that component removal is an AOAP-recommended action requiring feedback to the supporting laboratory, as opposed to an equipment inspector-directed action.

(3) Shop foremen, noncommissioned officers in charge, or quality assurance and quality control inspectors will attach two AOAP labels to the unserviceable component after it is cleaned and drained, and openings are taped closed. Then the other two labels will be prominently attached to the outside of the container. Container labels will be placed on opposite sides of the container.

(4) When DS maintenance personnel send equipment or a component to the GS maintenance facility on a “repair and return” basis, a copy of the DA Form 3254-R and DA Form 2407 will accompany the item.

(5) After GS maintenance personnel complete maintenance actions, they will complete the lower portion of the DA Form 3254-R explaining diagnostics performed, discrepancies found, and actions taken to return the component to a serviceable condition. GS maintenance personnel will also attach copies of the SAMS-1 maintenance request detail report (SAMS-1 PCN AHO-018) and DA Form 2407 to DA Form 3254-R, ensuring that all forms are signed by the GS maintenance officer and sent to the originating laboratory within 5 workdays after maintenance is completed.

## **N-8. AERONAUTICAL EQUIPMENT PROCEDURES**

a. Units will conduct aeronautical equipment AOAP using DD Form 2026, according to the basic regulation, DA Pamphlet 738-751, and TB 43-0106.

b. Units will handcarry or mail oil samples to the Director, Mannheim Laboratory Center, Unit 29702, CMR 418, APO AE 09058-9702.

## **APPENDIX O**

### **MATERIAL AND TESTING LABORATORY SERVICES**

#### **O-1. PURPOSE**

This appendix provides guidance for obtaining laboratory services for—

- a. Shelf-life of supplies.
- b. Procurement acceptance (pre-purchase and control) testing.
- c. Cyclic testing of Government supplies and equipment.
- d. Quality control of Government industrial operations.
- e. Testing and analyzing fuels, oils, and related products in connection with mechanical problems of lubricated systems.
- f. Problem-solving and quality testing of textiles, paper products, and packaging material.

#### **O-2. POLICY**

Laboratory testing support will be provided to USAREUR appropriated fund elements at no cost; other appropriated fund elements must reimburse the laboratory for testing support.

#### **O-3. RESPONSIBILITIES**

- a. The Mannheim Laboratory Center (MLC) is responsible for the laboratory services described in O-1 above.
- b. The United States Army Test, Measurement, and Diagnostic Region, Europe (DSN 495-7526), is responsible for inspecting and certifying small arms and ammunition gauges according to Technical Bulletin 43-180.
- c. Requests for laboratory testing of commodities, including but not limited to those listed in subparagraph e below, will be submitted on DD Form 1222 or by calling DSN 382-5288/5305. The DD Form 1222 will be sent to the Director, Mannheim Laboratory Center, Unit 29702, CMR 418, APO AE 09058-9702.
- d. Requests for laboratory testing by non-Army units or for commodities not in subparagraph e below will be sent to the 21st Theater Support Command (AERLO-MM), Unit 23203, APO AE 09263-3203, for review and approval or disapproval.
- e. The MLC will test the following commodities:
  - (1) Abrasives.
  - (2) Antifreeze.
  - (3) Asbestos content.
  - (4) Asphalted and bituminous products.
  - (5) Batteries and battery acid.
  - (6) Brake fluid.
  - (7) Building materials (for example, concrete, plasters, tiles).
  - (8) Cements, adhesives, and tapes.
  - (9) Disinfectants and decontaminating products.
  - (10) Ferrous and nonferrous metals.
  - (11) Gauges (for test, measure, and diagnostic equipment, see subparagraph b above).
  - (12) Insecticides, pesticides, fungicides, and herbicides.
  - (13) Liquid propellants (fuel and oxidizers).

- (14) Organic and inorganic chemicals.
- (15) Paints and lacquers.
- (16) Paper products, fiberboard, and packaging materials.
- (17) Paving materials.
- (18) Pentachlorophenol (PCP) determination.
- (19) Petroleum, oils, lubricants, and greases.
- (20) Polychlorbiphenyl (PCB) determination.
- (21) Preservative compounds.
- (22) Rubber adhesives.
- (23) Rubber materials.
- (24) Soap, detergents, and cleaning compounds.
- (25) Soil analysis, according to U.S. and German requirements.
- (26) Solid fuels.
- (27) Solvents.
- (28) Textiles.
- (29) Transformer oils.
- (30) Vadose and groundwater analysis, according to U.S. and German requirements.
- (31) Water (for example, lead in drinking water).
- (32) Wood and wood products.

#### **O-4. PROCEDURES**

a. Testing samples that have not been properly collected, prepared, preserved, or transported waste Government resources and laboratory time. The laboratory will offer advice and assistance about sampling techniques. The following are some recommended sample sizes and shipping containers:

- (1) Send paint in its original factory-sealed container to the laboratory.
- (2) Send solid fuels (1 to 1.5 kilograms) in a polyethylene bag. Enclose the bag in a wide-mouth metal container.
- (3) Pack class 2 and 4 items in their original containers or packages when possible.
- (4) Wrap gauges and similar instruments in proper barrier wrapping and pack in wooden boxes.

b. DD Form 1222 will be accepted only from procurement, quality assurance, and engineering agencies and commanders or designees of authorized U.S. Government agencies. Requests should be as specific as possible on the tests required and the reasons for them. Standard test procedures and specifications should be cited when applicable. Shelf-life samples may be submitted if the material represented is valued at \$100 or more. All samples sent must be identified properly and the degree of urgency indicated on DD Form 1222. DD Form 1222 must be filled out completely with the name and telephone number of the POC. In case of doubt, contact the laboratory for guidance.

#### **O-5. DD FORM 1222**

DD Form 1222 is available at <http://web1.whs.osd.mil/icdhome/ddeforms.htm>.

**APPENDIX P**  
**SAMPLE DATA COLLECTION PROGRAM**

**P-1. GENERAL**

This appendix establishes policy and procedures for sample data collection (SDC) in USAREUR.

**P-2. POLICY**

a. USAREUR SDC programs will—

- (1) Use the level-2 or -3 methods of data collection.
- (2) Have an in-country contracting officer's technical representative (COTR).
- (3) Not obligate USAREUR units to provide administrative support to data collectors.

b. Individual logistic support (for example, commissary, exchange privileges) for data collectors will be established by the sponsoring command COTR according to USAREUR Regulation 600-700 before the plan is implemented.

**P-3. RESPONSIBILITIES**

a. The USAREUR G4 (AEAGA-MD-P) will—

- (1) Administer and direct the USAREUR SDC Program.
- (2) Approve or disapprove SDC requests from sponsoring agencies.

b. SDC sponsoring agencies will—

(1) Send SDC publications (for example, HQDA circulars, SDC plans, field procedures guides, SDC plan extension requests) to the USAREUR G4 (AEAGD-MD-P), Unit 29351, APO AE 09014-9351.

- (2) Address SDC requirements in new equipment materiel fielding plans.

c. The Commander, United States Army Materiel Command, Europe, will—

(1) Designate an in-country COTR to perform delegated duties of the sponsoring agency SDC contracting officer's representative (COR).

- (2) Process requests for theater clearance for SDC contractor personnel.

(3) Request technical-expert status if required from the DOD Contractor Personnel Office, Unit 29150, APO AE 09100-9150.

(4) Provide the proponent of this appendix and the Commander, 200th Theater Support Command Materiel Management Center (200th TSC MMC), a copy of theater clearances and approved accreditation letters.

d. The Commander, 200th TSC MMC (AERLA-MMC), will—

- (1) Manage the USAREUR SDC Program.
- (2) Appoint a USAREUR SDC coordinator in writing to handle SDC actions for USAREUR.
- (3) Provide the coordinator's name, telephone number, and office symbol to the USAREUR G4 (AEAGD-MD-P).

(4) Coordinate proposed and approved SDC plans with USAREUR commands and the in-country COTRs of sponsoring agencies.

(5) Review SDC publications (for example, HQDA circulars, SDC plans, field procedures guides, SDC plan extension requests).

(6) Verify the need for each SDC program 24 months after implementation and at each 12-month interval afterwards.

(7) Develop SDC procedures.

(8) Monitor theater SDC programs.

(9) Attend the annual SDC conference and provide briefings when required.

e. Commanders will—

(1) Help select units to participate in SDC.

(2) Appoint a command SDC monitor to administer and control the program in the command.

(3) Review SDC documents relating to equipment used by their units.

(4) Give data collectors access to required data.

(5) Ensure the SDC program is executed according to the field procedures guide and approved USAREUR SDC plan and that SDC does not interfere with the unit mission.

(6) Not enter into a separate agreement with the SDC sponsoring agency to perform SDC in the command.

f. The SDC sponsoring agency contracting officer's representative (COR) or the designated COTR will—

(1) Coordinate SDC requirements with the Commander, 200th TSC MMC (AERLA-MMC); contractor personnel; and the participating unit commander.

(2) Coordinate implementation briefings with units.

#### **P-4. PROCEDURES**

a. On receipt of SDC publications—

(1) The USAREUR G4 (AEAGD-MD-P) will send them to the Commander, 200th TSC MMC, for analysis.

(2) The Commander, 200th TSC MMC, will review the publications and coordinate them with affected commands.

(3) Commanders of affected commands will review and coordinate the publications with appropriate units.

(a) Results of commander reviews and staffing will be provided to the Commander, 200th TSC MMC.

(b) On receipt of staffing results, the Commander, 200th TSC MMC, will analyze comments and provide recommended changes or recommend approval or disapproval, with supporting justification, to the USAREUR G4 (AEAGD-MD-P).

b. On notification of USAREUR approval of an SDC plan or extension, the Commander, 200th TSC MMC, will coordinate execution of the plan.

## **APPENDIX Q MAINTENANCE FLOAT PROGRAM**

### **Q-1. REFERENCES**

- a. AR 700-138, Army Logistics Readiness and Sustainability.
- b. AR 710-2, Supply Policy Below the Wholesale Level.
- c. AR 725-50, Requisitioning, Receipt, and Issue System.
- d. AR 735-5, Policies and Procedures for Property Accountability.
- e. AR 735-11-2, Reporting of Supply Discrepancies.
- f. DA Pamphlet 710-2-1, Using Unit Supply System (Manual Procedures).
- g. DA Pamphlet 710-2-2, Supply Support Activity System: Manual Procedures.
- h. DA Pamphlet 738-750, Functional Users Manual for The Army Maintenance Management System (TAMMS).

### **Q-2. GENERAL**

The only authorized maintenance float in USAREUR is the operational readiness float (ORF). The USAREUR ORF helps units maintain an acceptable readiness posture. Using ORF, units can meet unprogrammed maintenance requirements when repair of these items cannot be made in a specified time. ORF is a controlled quantity of selected items of equipment authorized for stockage at direct support (DS)-level maintenance.

### **Q-3. APPLICABILITY**

The Commander, 200th Theater Support Command Materiel Management Center (200th TSC MMC) (AERLA-MMC-CR&P, DSN 484-7151), is responsible for ORF management.

### **Q-4. POLICY**

**a. General.** USAREUR ORF accounts are accounted for under stock record account (SRA) procedures in AR 710-2 and DA Pamphlet 710-2-2. The SRA officer is the accountable officer.

**b. Establishing an ORF Account.** DS maintenance units will do the following to request establishment of an ORF account:

(1) Send a request for a derivative unit identification code (UIC) through command channels to the USAREUR G3 (AEAGC-FMD), Unit 29351, APO AE 09014-9351, according to Chairman of the Joint Chiefs of Staff Manual 3150.02.

(2) Request a Department of Defense Activity Address Code (DODAAC) according to AR 725-50.

(3) After the derivative UIC and DODAAC are received, complete a memorandum of justification. The memorandum should include at least the following information:

(a) Unit UIC and DODAAC.

(b) Line item number (LIN), national stock number (NSN), nomenclature, and demand data of equipment requested for authorization into the ORF account.

(c) Quantity of equipment requested for the ORF account.

(d) Quantity of requested equipment supported.

(e) Written justification (including difficulties getting repair parts, geographic area supported, forced issues of ORF items as a result of materiel fielding, and other pertinent reasons).

(4) The memorandum ((3) above) should request that the unit be added to the USAREUR ORF unit list (d below) and, for new equipment, request the equipment be added to the DA-approved authorization list.

**c. Changes to, Additions to, and Deletions From ORF Authorization Lists.** The ORF authorization list can be changed, added to, or deleted from throughout the year if there is a new requirement or if the account was established the previous January. A memorandum of justification is required when requesting change in ORF authorization (b above). Memorandums of justification should be sent to the USAREUR ORF Manager.

**d. ORF Authorization Lists.** The 200th TSC MMC publishes a quarterly authorization list, which is the only source to be used in sending and editing ORF requisitions in USAREUR. This list is the formal authorization to requisition and retain ORF stocks. The report lists approved ORF authorizations by UIC for each unit. It also lists LINs, NSNs, and the total authorization for each LIN and NSN with subtotals for each USAREUR command.

**e. Continuing Balance System-Expanded (CBS-X) Reporting.**

(1) Accountable officers must report changes to the on-hand balance of their ORF equipment to the USAREUR ORF Manager no more than 15 calendar days after the transaction has occurred.

(2) Accountable officers must provide a copy of the following ORF supply transaction records to the USAREUR ORF Manager:

(a) DD Form 362, Statement of Charges/Cash Collection Voucher (for Government property lost, damaged, or destroyed).

(b) DD Form 1131, Cash Collection Voucher.

(c) DA Form 2765-1, Request for Issue or Turn-In (for equipment “found on installation”).

(d) DA Form 3161, Request for Issue or Turn-In (for lateral transfers).

(e) DA Form 4697, Department of the Army Report of Survey.

(f) DA Form 4949, Administrative Adjustment Report.

**f. Readiness Reporting.** Readiness reporting policy for ORF is as follows:

(1) Units with ground or missile ORF will complete and send a monthly DA Form 2406 or DA Form 3266-1, whichever is applicable, for reportable ORF equipment (AR 700-138), to the 200 Theater Support Command Materiel Management Center (200th TSC MMC) (AERLA-MMC-CR&P), Unit 23203, APO AE 09263-3203, not more than 3 workdays after the 15th of the month. Units are encouraged to use electronic data transmission (for example, fax, e-mail) to meet the report suspense.

(2) Workdays are defined as days that are not weekends or Federal holidays. USAREUR and unit training holidays are considered workdays for the purposes of the Installation Materiel Condition Status Reporting System (IMCSRS) reporting timeline. The 96-hour reporting requirement for the unit status report remains in effect according to AR 220-1.

(3) The 200th TSC MMC ORF Manager will consolidate all ORF forms (DA Form 2406 and DA Form 3266-1) using the IMCSRS. The 200th TSC MMC ORF Manager will send the consolidated theater ORF readiness report using the 200th TSC MMC UIC WH6TAA by e-mail to the Logistics Support Agency (LOGSA), according to the timeline and guidance in AR 700-138.

(4) Units with ORF aircraft will report using their UIC on DA Form 1352 (AR 700-138) to the 200th TSC MMC (AERLA-MMC-AMTD), Unit 23203, APO AE 09263-3203, not more than 3 workdays after the 15th of the month.

(5) The Chief, Aviation, Missile, and Communications Branch, 200th TSC MMC, will send ORF readiness reports by electronic data transfer to the LOGSA according to the timeline and guidance in AR 700-138.

#### **g. Excess ORF Equipment.**

(1) Direct support units (DSUs) that have UICs for which the ORF excess report shows assets above the authorization will request disposition instructions from their materiel management center (MMC). Units also may request disposition instructions for ORF equipment they are authorized but not able to maintain. The respective MMC will request permission to redistribute assets within their commands. These requests will be sent to the USAREUR ORF Manager at 200th TSC MMC (AERLA-MMC-CR&P), Unit 23203, APO AE 09263-3203. If the request is approved, the MMC will redistribute assets and report remaining ORF assets to the USAREUR ORF Manager for disposition.

(2) Requests for disposition instructions should include the following information and supporting documents according to the maintenance expenditure limit (MEL) technical bulletin (TB):

- (a) DODAAC.
- (b) DD Form 1384-2.
- (c) DA Form 461-5.
- (d) DA Form 2404.
- (e) DA Form 3590.

(3) The USAREUR ORF Manager will accept only serviceable ORF equipment for disposition. Equipment classified as supply condition code H (unserviceable/condemned) or P (unserviceable/reclamation) will be returned through normal supply channels. Combat vehicles with supply code H must be reported to the 200th TSC MMC for disposition instructions.

#### **Q-5. REQUESTS FOR WAIVER**

Requests to waive any provision of the policy in this appendix will be sent to the 200th TSC MMC (AERLA-MMC-CR&P), Unit 23203, APO AE 09263-3203.

#### **Q-6. RESPONSIBILITIES**

a. The USAREUR G4 (AEAGD-MD-P)—

- (1) Is responsible for USAREUR ORF policy.
- (2) Prepares and sends requests for exception to DA policy to HQDA (DALO-SMM).

b. The 200th TSC MMC (AERLA-MMC-CR&P)—

- (1) Has overall authority for distributing and redistributing ORF assets in USAREUR.
- (2) Will provide guidance to USAREUR units on ORF management.

c. The USAREUR ORF Manager (200th TSC MMC, DSN 484-7151) will—

- (1) Be the primary POC and controller of USAREUR ORF.
- (2) Be the central collection activity for USAREUR ORF accounts using the CBS-X.
- (3) Announce (45 calendar days before) and conduct annual ORF review boards and ORF conferences.
- (4) Review and approve ORF authorization levels for USAREUR ORF accounts.
- (5) Prepare and distribute annual ORF authorization lists and ORF excess reports.
- (6) Provide ORF demand data to the United States Army Materiel Command according to the basic regulation.
- (7) Review and approve or disapprove the establishment of ORF accounts in USAREUR.

d. DSU commanders will—

- (1) Formally appoint an accountable officer to manage the DSU ORF account.
- (2) Supervise the management of the unit's ORF account and the maintenance of the unit's ORF equipment.

e. ORF accountable officers will—

- (1) Account for ORF assets according to AR 710-2 and DA Pamphlet 710-2-2 and ensure ORF assets are hand-receipted appropriately.
- (2) Maintain DA Form 1296 according to DA Pamphlet 710-2-2.
- (3) Report and turn in excess ORF equipment.
- (4) Send requests for disposition instructions for excess ORF equipment to the 200th TSC MMC (AERLA-MMC-CR&P).
- (5) Document on-hand balance changes and send them to the 200th TSC MMC (AERLA-MMC-CR &P).
- (6) Ensure ORF shortages are requested by memorandum sent through command channels to the 200th TSC MMC (AERLA-MMC-CR&P), Unit 23203, APO AE 09263-3203.
- (7) Attend ORF conferences and review boards.

f. The DSU ORF POC (when designated by the ORF hand-receipt holder) will—

- (1) Provide, in conjunction with the accountable officer, the following information to the 200th TSC MMC (AERLA-MMC-CR&P), Unit 23203, APO AE 09263-3203, at least 30 calendar days before the ORF review board:
  - (a) Actual demand data for all authorized ORF items and ORF candidates. This will be reported for the calendar year ending 31 December.
  - (b) Authorized ORF items where enough resources to maintain the items are not available (disposition instructions will be provided to the accountable officer).
- (2) Provide resources for turning in excess ORF equipment as it is identified.
- (3) Request and process lateral transfers from the USAREUR ORF Manager and notify the USAREUR ORF Manager when transfers are completed.
- (4) Use ORF equipment as prescribed by the basic regulation.
- (5) Participate in annual ORF review board conferences.
- (6) Direct the maintenance of ORF equipment.

#### **Q-7. ORF CANDIDATES AND DEMANDS**

a. It is imperative that MMCs retrieve the master maintenance data file (MMDF) from the LOGSA, update authorized ORF and maintenance significant items, and send the updated Equipment Master File (EMF) to subordinate Standard Army Maintenance System-Level 2 (SAMS-2) and Standard Army Maintenance System-Level 1 (SAMS-1) that report directly to the MMC. This will ensure ORF demands are accurately reported on all ORF items. MMCs must update the EMF and send it to subordinate SAMS as changes occur.

b. SAMS-1 correlates each new maintenance request NSN with the EMF and looks for the presence of an ORF indicator ("Y" or "N") in the ORF DA field. SAMS-1 does this each time a maintenance request is registered in the system and when NSNs on the maintenance requests are modified. If the ORF DA field in the EMF contains a "Y" and the maintenance request priority is 01 or 06, SAMS will enter an "L" (current ORF codes are listed in figure Q-1) in the ORF transaction code indicator field when the maintenance request is registered. The "L" means the item is on the DA ORF support list. It has no purpose other than to "capture" a demand.

| ORF Code | Definition                                   | Qualifies as Demand |
|----------|--|---------------------|
| I        | Issue from ORF Stock                         | Yes                 |
| R        | An Authorized ORF Asset in for repair        | Yes                 |
| L        | A DA Authorized ORF Asset                    | Yes                 |
| Z        | An ORF asset repaired and returned to stock. | No                  |

**Figure Q-1. ORF Codes and Demand Qualifications**

c. If the ORF DA field equals “Y” and the ORF AUTH field equals “Y”, then SAMS posts an “R” (repair) in the ORF transaction code indicator field. If a decision is made to not issue a float but to repair the item instead, the “R” in the ORF transaction code indicator field will cause the system to capture a demand for the NSN. If a decision is made to float an ORF asset, the SAMS operator must enter a maintenance request status code “7” (awaiting float transaction) to update the maintenance request record. When maintenance request status code “7” is entered, the system requests that the operator enter the serial number of the serviceable (float) item. After the operator enters the serial number of the serviceable (float) item, SAMS changes the ORF transaction code to an “I” (issue) and creates a new maintenance request, and changes the ORF transaction code on the original maintenance request from an “R” (repair) to a “Z” (no demand). The issue demand (one only) is then captured for this transaction.

d. When a serviceable float is issued against a maintenance request, and the original, unserviceable item, belongs to the ORF account, the utilization code must equal “4” and the ORF transaction code field must equal “Z”. The “Z” code means an ORF asset is being or was repaired and no demand will be captured (the demand has already been accounted for). SAMS will not allow a maintenance request with an ORF transaction code of “Z” to be closed (with maintenance request status code “V”, Closed – Requirement satisfied by ORF exchange).

e. Demands will be transferred with maintenance requests, tasks, and parts data during the weekly maintenance request transfer process to SAMS-2. When the weekly maintenance request transfer (AHN4BD) is processed at the SAMS-2, closed work order request data is written to the AHO04I file. For each record in the AHO04I file whose NSN shows an ORF Indicator of “Y” in the EMF, has a priority 01 to 06, and has a valid ORF Trans Code of “I”, “L”, or “R”, SAMS-2 will capture a demand to the ORF Master File (AHO25I). To properly post ORF FMC and NMC quantities, SAMS operators must first establish a record in the ORF Master File for each ORF item stocked. The record must indicate the quantity authorized by LIN and quantity on-hand by NSN. The sum of the fully mission capable (FMC) and not mission capable (NMC) quantities equals the quantity on-hand. When the Update ORF Demands process is run, the program changes ORF transaction codes (I, L, or R) to a numeric value. The numeric value precludes the record from being counted in subsequent runs of the ORF demands process. The Update ORF Demands process can be run as often as the maintenance manager deems necessary. Records are updated on the ORF Master File when the Update ORF Demands process is run. The Monthly Float Usage and Accumulative Report (by support UIC) (PCN AHO-039), the Monthly Float Usage and Accumulative Report (by LIN) (PCN AHO-040), and the ORF Status and Utilization Report (PCN AHO-041) all use the ORF Master File as source data.

f. At the end of the annual reporting period, after all AHN4BD files have been processed, SAMS operators will use the Update ORF Demands process to produce required reports. SAMS operators must run the Purge ORF File process to Purge quantities in the cumulative fields of the ORF file (ORF Quantity Demanded, ORF Quantity Issued, and ORF Turn-Around Time). This resets the demand counters to begin accumulating data in the new year. Purged data is written to diskette and the fields in the ORF Master File are reset to zero. This process allows purged data to be restored from a previous period for report purposes (always maintain up-to-date backups of the current years data file to restore when finished). Do not execute the Update ORF Demands process using purged data.

g. Pieces of equipment undergoing DS maintenance repair qualify as candidates for an ORF transaction when the piece of equipment—

- (1) Directly affects readiness posture (maintenance repair must be issue priority designator 01 through 06).
- (2) Is job-ordered for DS-level repair.

h. The decision to float equipment will be made by the maintenance officer in the DSU. SAMS automatically captures ORF demand data.

i. Declassified ORF controlled cryptographic items (CCIs) will be managed the same as other ORF equipment. The only exception is that the communications security logistics support unit must confirm that the item is repairable in the theater before a float transaction can take place. If the item is not repairable in the theater, it will be sent to Lexington Army Depot and replaced.

j. ORF aircraft will be used to assist units in maintaining mission readiness. ORF aircraft will not be used by aviation intermediate maintenance units as mission aircraft. ORF aircraft will be flown a maximum of 4 hours in a month. This includes maintenance test flights. Exceeding the maximum flight time for other than maintenance test flights is prohibited.

#### **Q-8. SAMS PROCEDURES FOR ORF**

Once the maintenance officer makes the decision to float an item, SAMS-1 handles the exchange of unserviceable assets for serviceable ORF assets. However, SAMS transactions are not a substitute for property book and stock record accounting procedures. Automated information system manuals (this suppl, para 4-12a) provide SAMS procedures.

#### **Q-9. GENERAL SUPPORT CENTER, EUROPE (GSC-E)-SUPPORT OF SELECTED V CORPS ORF ASSETS**

a. As agreed to by the 21st Theater Support Command (21st TSC), the General Support Center, Europe (GSC-E), will maintain selected V Corps ORF that cannot be maintained by V Corps. GSC-E will maintain V Corps ORF for which V Corps is not able to maintain. V Corps ORF managed by GSC-E will not be used to support theater-level maintenance programs without permission from the USAREUR G4 (AEAGD-MD-P, DSN 370-5950). The following procedures for maintaining V Corps ORF assets held at the GSC-E and at V Corps DS maintenance units will be instituted:

(1) The V Corps G4 will provide the 200th TSC MMC ORF Manager and the Assistant Chief of Staff, G4 (ACofS, G4), 21st TSC, a list of ORF assets to be maintained by the GSC-E. The V Corps G4 and the 200th TSC MMC ORF Manager will review the list annually to identify candidates for addition, deletion, or changes in quantity.

(2) What happens to V Corps DS unit ORF in a deployment scenario may vary. In one scenario, ORF may remain at homestation where it must be properly maintained. In another it goes with the unit in support of the mission. V Corps units may move ORF assets in and out of GSC-E as required to accommodate either scenario. Deploying units will request the issue of ORF assets for deploying DS units. If turned in, assets will be complete but without components of the end item (COEIs) and basic issue items (BIIs). Funding will be according to subparagraphs h and i below. Requests to reposition ORF assets from DS units to the GSC-E will be sent through the V Corps G4 to the 200th TSC MMC ORF Manager.

b. The exchange of ORF assets as a float transaction will not include communications equipment and BII, COEI, or associated support items of equipment (ASIOE). Communications equipment and BII, COEI, and ASIOE will be removed and retained by the using unit before exchanging an ORF asset with the GSC-E.

c. V Corps DS units will request ORF exchange by submitting a manual DA Form 2765-1 to the supporting V Corps MMC. The supporting V Corps MMC ORF coordinator will coordinate with the GSC-E to determine if assets are available and to exchange assets. The supporting V Corps MMC ORF coordinator will request ORF based on the demand criteria in paragraph Q-7. The GSC-E will respond to the request within 1 workday with a determination of whether or not an exchange can be made based on the availability of serviceable assets.

d. Once an exchange is approved, V Corps DS units will—

(1) Coordinate with the supporting MMC ORF manager and the GSC-E to exchange assets.

(2) Ensure that all required communications equipment and BII, COEI, and ASIOE are removed from the item before turn-in.

(3) Complete a DA Form 2404 documenting the condition of the equipment being turned in, including shortages.

(4) Coordinate with the supporting movement control team (MCT) transportation office for transportation of the item being turned in to the designated GSC-E repair facility. When necessary, organic transportation assets will be used to transport items being turned in. When possible, all shipments should be coordinated to ensure the backhaul of the serviceable item with the same transportation assets.

(5) Initiate action to disenroll the item being turned-in from the Army Oil Analysis Program (AOAP) within 3 workdays (DA Pam 738-750, chap 4).

(6) Send DA Form 2408-9 (DA Pam 738-750, chap 5) within 3 workdays after the date the equipment was transferred.

e. When the exchange is approved and the V Corps DS unit's organic transportation assets are not used, the GSC-E will—

(1) Coordinate transportation with the V Corps DSU and the supporting MCT. When possible, transportation should be coordinated to execute a direct exchange of the ORF asset held by GSC-E with one round-trip transportation movement.

(2) Initiate action within 3 workdays after the date of transfer to enroll the issued item in the AOAP (DA Pam 738-750, chap 4).

(3) Send DA Form 2408-9 (DA Pam 738-750, chap 5) within 3 workdays after the receipt of the issued item. This submission notifies the LOGSA that the equipment has been transferred.

f. On receipt of the customer asset and turn-in documentation, the GSC-E will—

(1) Validate the condition of the equipment and any shortages recorded on the DA Form 2404. Initiate requisition and repair actions consistent with other GSC-E workload priorities and available manhours. If the unit DA Form 2404 and the GSC-E validation differ by more than 10 percent in terms of repair costs, the unit turning in the piece of equipment will be notified and a joint inspection will be conducted to reconcile differences.

(2) Notify 21st TSC (AERLO-MR), the V Corps G4, and the 200th TSC MMC ORF Manager of any evidence of abuse or cannibalization.

(3) Enroll the equipment in the AOAP if required (DA Pam 738-750, chap 4).

(4) Send DA Form 2408-9 (DA Pam 738-750, chap 5) within 3 workdays after the date of transfer. This submission notifies the LOGSA that the equipment has been transferred.

g. The GSC-E will report ORF readiness to the 200th TSC MMC ORF manager and the ACofS, G4, 21st TSC, each month using a manual DA Form 2406. The ORF readiness report will be sent to the ACofS, G4, and the V Corps G4 within 3 workdays after the 15th of each month. The 200th TSC MMC ORF manager will consolidate all ORF readiness reports and send them to LOGSA using the IMCSRS.

h. The initial turn-in of ORF assets, from V Corps DS units to the GSC-E, will be a one-way transaction. The losing unit will prepare DA Form 2404 documenting the condition of each ORF asset. A DD Form 448 (MIRP) will accompany the DA Form 2404 to reimburse the GSC-E for any non-depot-level repairs (DLR) repair parts and missing communications equipment and BII, COEI, and ASIOE costs. A transfer of DLRs to the 21st TSC will be executed if required. The actual repair costs and the DD Form 448 (MIRP) will be reconciled and funding levels adjusted between the losing unit and the GSC-E. The initial transfer of ORF assets from V Corps DS units to the GSC-E will include all communications equipment, BII, COEI, and ASIOE, and all available repair parts for the item being transferred. The GSC-E will maintain all communications equipment, BII, COEI, and ASIOE provided, but will not exchange those items in subsequent ORF transactions.

i. The GSC-E will budget for ongoing maintenance of all ORF assets held by the GSC-E for the V Corps. V Corps will not transfer funds to 21st TSC for sustainment maintenance of ORF. Recording ORF demands and reporting annual ORF demand data will not change. The SAMS at the V Corps DS unit will be used to determine ORF demands.

j. ORF transactions will be managed and executed according to the following standards:

(1) ORF requests received by the GSC-E will be processed in 1 workday. The time starts with the receipt of the request and ends with a response to the requester indicating availability of assets and whether or not an exchange can be executed.

(2) Once initiated, an exchange will be completed as soon as possible. A time standard for exchange cannot be established because of the wide range of ORF equipment. Small items will be moved through the Theater Distribution Center. Large items will be scheduled for movement through the supporting MCT. Completion is defined as the time when the customer unit has turned in all required documentation, the unserviceable ORF asset has moved to a GSC-E facility, and the serviceable ORF asset has arrived at the V Corps DS maintenance activity that originated the exchange.

(3) The repair time goals for ORF assets will vary according to the priority of the maintenance request for the exchanged item. All repair work will be made on the same priority as the maintenance request of the exchanged item. All repair parts will be requisitioned. Long lead-time repair parts will be expedited through the Defense Logistics Agency and representatives of the United States Army Materiel Command. The following goals are established within the ORF repair process:

(a) Technical inspections should be completed within 15 calendar workdays after receipt. Repair-part requirements will be requisitioned within 5 calendar workdays after the technical inspection is completed.

(b) All open maintenance work requests for ORF items exceeding 30 days will be reviewed through a review and analysis or similar forum.

k. ORF items will be maintained according to the Army maintenance standard (basic AR, para 3-2). Customer units receiving equipment that does not meet the Army maintenance standard will contact the GSC-E Customer Complaint Team to resolve discrepancies. To ensure readiness, the supporting V Corps MMC ORF manager will coordinate all issues of items that do not meet the Army maintenance standard.

l. The GSC-E is responsible for reporting the initial storage of treaty-limited equipment stored at the GSC-E according to the Conventional Forces, Europe, Treaty.

## **APPENDIX R USAREUR CHEMICAL AGENT RESISTANT COATING (CARC) PAINTING POLICY**

### **R-1. PURPOSE**

This appendix provides the USAREUR CARC painting policy. The DA CARC policy is in the basic AR, paragraph 7-8.

### **R-2. GENERAL**

**a. Respiratory Protection Program.** Commanders will establish a local respiratory protection program (AR 11-34). The local command safety officer will help the commander develop a respiratory protection program if one does not exist.

**b. Respirator Fit-Test.** Employees must be medically cleared and trained in the wear of respirators prior to being fit-tested. Because the unit nuclear, biological, and chemical (NBC) noncommissioned officer (NCO) is trained to fit-test the chemical protective mask, he or she will perform respirator fit-testing. The NBC NCO may require only minimum training to fit-test and maintain respirators used in the occupational environment. The industrial hygienist will decide what type of respirator is required, but the industrial hygienist is not responsible for fit-testing.

### **c. CARC Painting.**

(1) CARC painting, repainting, and touchup painting are maintenance tasks. Commanders at all levels are authorized to request and approve contracts for CARC painting of tactical air and ground equipment when both of the following apply:

(a) The requirement exceeds the organic painting capability or capacity of the supporting direct or general support maintenance unit.

(b) Each contract is less than \$50,000.

(2) CARC painting requirements that exceed \$50,000 on a contract must be processed according to appendix M and sent to the Theater Logistics Maintenance Contract Office (AERSC-ZA), CMR 429, APO AE 09054-0429.

### **R-3. CONFINED SPACES**

A confined space is a space that is large enough and so configured that an employee can bodily enter and perform work, has a limited means of entry or exit, and is not designed for continuous occupancy. Employees are prohibited from entering confined spaces unless covered under an approved permit-required confined space program, including the required training and equipment, written procedures for permit issuing, entry, and emergency rescue. Safety officers are not trained in the issuing of these permits. For additional information about confined space requirements, contact the supporting industrial hygiene office.

### **R-4. BRUSH AND ROLLER PAINTING**

Painting at the unit level using a brush or roller will be limited to touch-up painting. Touchup painting includes restoration of painted surfaces after repair. Scratches, chips, or marring of the paint surface observed during preventive maintenance checks and services (PMCS) may be repaired at unit level to prevent corrosion.

a. Touch-up painting indoors routinely requires proper ventilation and the use of approved respirators and accessories. Each respirator, cartridge, pre-filter, and accessory must be from the same manufacturer to meet Mine Safety and Health Administration/National Institute for Occupational Safety and Health (MSHA/NIOSH) requirements. Table R-1 lists some of the respirators and accessories by manufacturer and national stock number (NSN) available through the normal supply system (AR 710-2). Respiratory protection for touch-up painting indoors is required unless the unit has quantitative sampling data to support otherwise (respirator support is not needed) (United States Army Environmental Hygiene Agency (USAEHA) Technical Guide Number 144 (TG 144)).

b. Touch-up painting outdoors is encouraged and does not require respiratory protection when natural ventilation is adequate. Outdoor touchup painting may be performed without respiratory protection after the local industrial hygienist determines that respiratory protection is not required.

| <b>Table R-1<br/>Respirators and Accessories (note)</b>   |   |
|---|---|
| <b>National Stock Number</b>  | <b>Item</b>   |
| <b>3M</b>   |   |
| 4240-01 -246-5401   | Respirator Half Mask Face Piece - Silicone (small/medium)                 |
| 4240-01-246-5404  | Respirator Half Mask Face Piece - Silicone (medium/large)                 |
| 4240-01-246-5407  | Organic Vapor Cartridge   |
| 4240-01-235-0823  | Cartridge Retainer  |
| 4240-01-246-5411  | High Efficiency Filter (HEPA)   |
| 4240-01-231-7718  | High Efficiency Filter Retainer   |
| 4240-01-246-5413  | Paint Spray Pre-Filter  |
| <b>Wilson</b>   |   |
| 4240-01-269-4170  | Respirator Paint Spray Half-Face w/Dual Cartridges (small)                |
| 4240-01-269-4171  | Respirator Paint Spray Half-Face w/Dual Cartridges (medium)               |
| 4240-01-2694 -172   | Respirator Paint Spray Half-Face w/Dual Cartridges (large)                |
| 4240-01-268-0567  | Paint Spray Cartridges w/Prefilters (20 per box)                          |
| 4240-01-268-0568  | HEPA Filters (10 per box)   |
| <b>Scott</b>  |   |
| 4240-01-250-0751  | Respirator Paint Spray/Organic Vapor Half-Face w/Dual Cartridges (small)  |
| 4240-01-250-0748  | Respirator Paint Spray/Organic Vapor Half-Face w/Dual Cartridges (medium) |
| 4240-01-250-0749  | Respirator Paint Spray/Organic Vapor Half-Face w/Dual/Cartridges (large)  |
| 4240-01-250-0774  | Replacement Organic Vapor Cartridges (pair)                               |
| 4240-01-250-0780  | Replacement Pre filters (10 pair per package)                             |
| 4240-01-250-9024  | Replacement Retainer Ring (each)  |
| 4240-01-250-0773  | Cartridge HEPA, Organic Vapor, Dust, Mist, Fume Filter                    |
| <b>NOTE:</b> Respirators and accessories in this table may be obtained using DA Form 2765-1. The Federal Logistics Record (FED LOG) lists current prices and minimum ordering quantities. |   |

### R-5. SPRAY PAINTING

Spray-painting operations and facilities require evaluation and approval by the supporting industrial hygiene and safety offices and the fire marshal. Spray painting should be performed only in facilities that meet U.S. and host country environmental, safety, and health standards. Use of air-line respirators is the only way to ensure protection when spray painting, unless there is enough ventilation to ensure exposures are below the permissible exposure limit (PEL) (USAEHA TG 144) and workplace monitoring proves that exposures do not exceed the PEL. Table R-2 lists respirator kits by manufacturer.

### R-6. AIR QUALITY

**a. Specification.** The breathing air for air-line respirators must meet the specifications for grade D breathing air as defined in the American National Standards Institute/Compressed Gas Association Specification G-7.1-1989. The required specifications are as follows:

- (1) Oxygen: 19.5 to 23.5 percent.
- (2) Oil (condensed): 5 milligrams per square meter.
- (3) Carbon monoxide: 10 parts per million maximum.
- (4) Carbon dioxide: 1,000 parts per million maximum.

**b. Sampling Responsibility.** The supplier of the compressed air, or the owner or operator of the compressor, will ensure the equipment meets performance requirements. The owner or operator may perform air-quality tests after proper instruction on the use of the test equipment.

**Table R-2  
Respirators Kits**

**3M**

PES1 Kit, Respirator, General Purpose, Helmet, Air Supplied NSN: 4240-01-259-4594

This kit consists of:  
 W-2862 (4240-01-113-4744, Vortex Air Cooling Assembly) (one each)  
 W-5114 (4240-01-163-4136, Breathing Tube) (one each)  
 W-8000 (4240-01-248-7914, Whitecap II General Purpose Helmet) (one each)  
 W-8051 (4240-01-247 -2924, Reusable Shroud Assembly) (one each)  
 W-9435-25 (4240-01-179-7957, Compressed Air Hose - 25 feet) (one each)

PES4 Kit, Respirator (Full Facepiece), Air Supplied NSN: 4240-01-259-4597

This kit consist of:  
 W-7800 (4240-01-246-6426, Full Facepiece-Rubber) (one each)  
 W-2963 (4240-01-248-8136, Waist Belt) (one each)  
 W-3061 (4240-01-248-8135, Air Regulating Valve Assembly) (one each)  
 W-3062 (Air Regulating Valve) (one each)  
 W-3064 (Shoulder Strap) (one each)  
 W-3187 (Adaptor Assembly) (one each)  
 W-3188 (Breathing Tube) (one each)  
 W-7890 (Plug) (one each)  
 W-9435-25 (4240-01-179-7957, Compressed Air Hose - 25 feet) (one each)

PES2 Kit Respirator, Abrasive Blasting Helmet, Air Supplied NSN: 4240-01-259-4595

**BULLARD**

This kit consists of:  
 W-2862 (4240-01-113-4744, Vortex Air Cooling Assembly) (one each)  
 W-5114 (4710-01-163-4136, Breathing Tube) (one each)  
 W-8052 (4240-01-247-2925, Reusable Shroud Assembly) (one each)  
 W-8100 (4240-01-245-0338, Whitecap II Abrasive Blasting Helmet) (one each)  
 W-9435-25 (4240-01-179-7957, Compressed Air Hose - 25 feet) (one each)

77SHI Respirator, Complete With 4644 Medium Weight Black Nylon Cape-28" Length NSN: 4240-01-252-6611

This kit is shipped complete with:  
 464 horsepower air entry flow control valve  
 Belt  
 Inner and outer lenses  
 25 feet of 3/8 inch ID-approved V-10 hose  
 Choice of cape with inner neck cuff

**NOTE:** The respirator kits in this table maybe obtained using DA Form 2765-1. The FED LOG lists prices and minimum ordering quantities

**c. Sampling Frequency for Oil-Free Compressors.** Complete laboratory analysis is required—

- (1) Before initial use and two times a year after that.
- (2) After major repairs.
- (3) When the compressor is moved.

**d. Sampling Frequency for Oil-Lubricated Compressors.**

- (1) Complete laboratory analysis is required—
  - (a) Before initial use and every 90 days after that.
  - (b) After major repairs.

(c) When the compressor is moved.

(2) When only a high-temperature alarm is used, the air from the compressor will be tested for carbon monoxide before each use.

#### **R-7. OIL-FREE AND OIL-LUBRICATED COMPRESSORS**

Only oil-free compressors may be used to supply breathable air for respirators. When possible, oil-free compressors should be procured when obtaining more or replacing existing compressors used for supplying breathing air. Oil-free compressors are preferred because of the concern that the oil in oil-lubricated compressors will break down under high temperatures and produce carbon monoxide, which may leak past the pistons and be drawn into the air supply.

**a. Safety and Stand-by Devices for Oil-Free Compressors.** When an oil-free compressor is used to supply breathing air, it must be equipped with—

(1) Suitable in-line, air-purifying sorbet beds and filters.

(2) An air-storage receiver that is large enough to enable the respirator wearer to escape from a contaminated atmosphere if the compressor fails.

(3) An alarm to indicate compressor failure and overheating.

(4) Air-line couplings that are not compatible with outlets for other gas systems or pneumatic tools. This will prevent inadvertent servicing of air-line respirators, other gas systems, or compressed air for pneumatic tools.

**b. Safety and Standby Devices for Oil-Lubricated Compressors.** When an oil-lubricated compressor is used to supply breathing air, it must be equipped with—

(1) Safety items in a(1) through (4) above.

(2) A high-temperature or carbon monoxide alarm. These alarms must be audible and visible. A high-temperature gauge will not be used in place of an alarm. The carbon monoxide alarm will be—

(a) Located between the purification system and the filling manifold or air-line respirator.

(b) Set at 5 parts per million.

(c) Calibrated every 90 days.

#### **R-8. AUTHORIZED CARC**

a. The following CARC topcoats may be used:

(1) Two-component CARC topcoat MIL-C-46168, types II and IV.

(2) One-component CARC topcoat MIL-C-53039.

b. Both topcoats (a above) are lead- and chromate-free. The one-component topcoat (a(2) above) is preferred because it is easy to apply and waste is minimal.

c. The topcoats in subparagraph a above will be used with thinner MIL-T-81772, type I.

d. The authorized primer is MIL-P-53022. MIL-P-53022 is a two-component epoxy coating that is corrosion inhibiting and lead- and chromate-free. MIL-P-53022 will be used with thinner MIL-T-81772, type II.

e. Table R-3 describes the different coatings and their NSNs. The information in table R-3 is from the Army Master Data File or FED LOG. More information and NSNs are in USAEHA TG 144 and TM 43-0139.

**Table R-3**  
**CARC NSNs in the Army Master Data File (notes)**

| Type   | NSN  | Size           | Color          |
|--|--|----------------|----------------|
| <u>MIL-C-46168</u> (This is a two-component topcoat, aliphatic polyurethane coating. Type II is the standard formula; type IV is the high solids volatile organic compound (VOC) compliant formula.) |  |                |                |
| Type II (note 1)   | 8010-01-160-6741   | 1¼-quart kit   | Green 383      |
|  | 8010-01-162-5578   | 1¼ -gallon kit | Green 383      |
|  | 8010-01-160-6742   | 5-gallon kit   | Green 383      |
|  | 8010-01-160-6744   | 1¼-quart kit   | Brown 383      |
|  | 8010-01-160-6745   | 1¼-gallon kit  | Brown 383      |
|  | 8010-01-160-6746   | 5-gallon kit   | Brown 383      |
|  | 8010-01-141-2419   | 1¼-quart kit   | Black          |
|  | 8010-01-131-6254   | 1¼-gallon kit  | Black          |
|  | 8010-01-131-6261   | 5-gallon kit   | Black          |
|  | 8010-01-141-2416   | 1¼-quart kit   | Sand           |
|  | 8010-01-130-3347   | 1¼-gallon kit  | Sand           |
|  | 8010-01-131-6259   | 5-gallon kit   | Sand           |
| Type IV (note 2)   | 8010-01-260-7481   | 1¼-quart kit   | Green 383      |
|  | 8010-01-260-0911   | 1¼-gallon kit  | Green 383      |
|  | 8010-01-260-0912   | 5-gallon kit   | Green 383      |
|  | 8010-01-260-7482   | 1¼-quart kit   | Brown 383      |
|  | 8010-01-260-0916   | 1¼-gallon kit  | Brown 383      |
|  | 8010-01-260-0917   | 5-gallon kit   | Brown 383      |
|  | 8010-01-260-0913   | 1¼-quart kit   | Black          |
|  | 8010-01-260-0914   | 1¼-gallon kit  | Black          |
|  | 8010-01-260-0915   | 5-gallon kit   | Black          |
|  | 8010-01-260-0921   | 1¼-quart kit   | Sand           |
|  | 8010-01-260-0922   | 1¼-gallon kit  | Sand           |
|  | 8010-01-260-7483   | 5-gallon kit   | Sand           |
|  | <u>MIL-C-53039</u> (This is a one-component topcoat, aliphatic polyurethane coating.) (note 3) |                |                |
|  | 8010-01-229-7546   | 1-quart can    | Green 383      |
|  | 8010-01-229-9561   | 1-gallon can   | Green 383      |
|  | 8010-01-229-7547   | 5-gallon can   | Green 383      |
|  | 8010-01-229-7543   | 1-quart can    | Brown 383      |
|  | 8010-01-229-7544   | 1-gallon can   | Brown 383      |
|  | 8010-01-229-7545   | 5-gallon can   | Brown 383      |
|  | 8010-01-229-7540   | 1-quart can    | Black          |
|  | 8010-01-229-7541   | 1-gallon can   | Black          |
|  | 8010-01-229-7542   | 5-gallon can   | Black          |
|  | 8010-01-234-2934   | 1-quart can    | Sand           |
|  | 8010-01-234-2935   | 1-gallon       | Sand           |
|  | 8010-01-234-2936   | 5-gallon can   | Sand           |
|  | 8010-01-246-0717   | 1-quart can    | Aircraft Green |
|  | 8010-01-246-0718   | 1-gallon can   | Aircraft Green |
|  | 8010-01-246-0719   | 5-gallon can   | Aircraft Green |
|  | 8010-01-246-0717   | 1-quart can    | Aircraft Green |
|  | 8010-01-246-0718   | 1-gallon can   | Aircraft Green |
|  | 8010-01-24 6-0719  | 5-gallon can   | Aircraft Green |

**Table R-3****CARC NSNs in the Army Master Data File (notes)**

| Type  | NSN               | Size           | Color |
|---|-------------------|----------------|-------|
| <u>MIL-T-81772</u> (This is an aircraft coating thinner, which is used with CARC topcoats and primers. It comes in type I and type II. The only thinner that may be used with the topcoats is type I. Type II thinner is used with the primer.)   |                   |                |       |
| Type I (note 4)   | 8010-00-I 81-8080 | 1-gallon can   |       |
|   | 8010-00-181-8079  | 5-gallon can   |       |
|   | 8010-00-280-1751  | 55-gallon drum |       |
| Type II (note 5)  | 8010-01-200-2637  | 1-gallon can   |       |
|   | 8010-01-212-1704  | 5-gallon can   |       |
|   | 8010-01-168-0684  | 55-gallon drum |       |
| <u>MIL-P-53022</u> (Primer, Epoxy Coating, Corrosion Inhibiting, Lead and Chromate-Free. This is a two-part, flash-drying, corrosion-inhibiting, lead and chromate-free epoxy primer for use on pretreated ferrous and nonferrous metals that must meet air pollution requirements.)  |                   |                |       |
|   | 8010-01-193-0516  | 1¼-quart kit   | White |
|   | 8010-01-193-0517  | 1¼-gallon kit  | White |
|   | 8010-01-187-9820  | 5-gallon kit   | White |
| <p><b>NOTES:</b> 1. A sample description of MIL-C-46168, type II, in the FED LOG is NSN 8010-01-141-2419 - Black, 37030 Color Chip No; Polyurethane Basic Formulation TY; Pigmented Coloring Method; TY II; Cage 81349, Non-definitive Spec MIL-C-46168; Cage 80244, Non-definitive Spec MIL-C-46168 TY II.</p> <p>2. A sample description of MIL-C-46168, type IV, in the FED LOG is NSN 8010-01-260-0915 - Black, Polyurethane Basic Formulation TY; Pigmented Coloring Method; TY IV; Cage 81349, Non-definitive Spec MIL-C-46168; Cage 80244, Nondefinitive Spec MIL-C-46168, TY IV.</p> <p>3. A sample description of MIL-C-53039 in the FED LOG is NSN 8010-01-234-2934 - Sand; 33303 Color Chip No; Polyurethane Basic Formulation TY; Pigmented Coloring Method; SPCL FEAT Chemical Agent Resistant Coating, Single Component; Cage 81349 Nondefinitive Spec MIL-C-53039.</p> <p>4. A sample description of MIL-T-81772, type I, in the FED LOG is NSN 8010-00-181-8079 - Thinner, Aliphatic Polyurethane Coating; 5 Gal, Unit Qty, Pail, Non-definitive Spec/Ski Data TY I; RN Difference as Differentiated by Pkg Data; Cage 81349, Non-definitive Spec MIL-T-81772, Cage 71191, P/N T1184-66; Cage 80244 Non-definitive Spec MIL-T-81772, TY 1.</p> <p>5. A sample description of MIL-T-81772, type I, in the FED LOG is NSN 8010-01-200-2637 - Thinner, Epoxy; 1 Gal can; intended for use with MIL-C-22750 and MIL-C-23377; Non-definitive Spec/Std Data TY II; Departure/Cited Designator Substitute Propylene Glycol Methyl Ether for Ethylene Glycol Methyl Ether, Cage 81349, Non-definitive Spec MIL-T-81772; Cage 80244, Non-definitive Spec MIL-T-81772, TY II.</p> |                   |                |       |

**R-9. SURFACE PREPARATION**

a. Chemical strippers will not be used because they are a neurotoxin. Surface preparation at the unit level is limited to wire and wet sanding.

b. Spray painting, power sanding, and sandblasting will be done only by direct support, general support, and depot maintenance operations that meet applicable health and safety standards.

c. Table R-4 lists types of respirators required when performing surface preparation.

**R-10. MSHA/NIOSH APPROVED RESPIRATORS VERSUS DIN-APPROVED RESPIRATORS**

a. *Deutsche Industrienorm (DIN)* (German Industrial Standards)-approved respirators may be used by local national employees only.

b. Only the United States Army Center for Health Promotion and Preventive Medicine-Europe (CHPPM-EUR) may approve the use of *DIN*-approved respirators.

| <b>Table R-4<br/>Required Respirators for Surface Preparation</b> |   |
|---|---|
| <b>OPERATION</b>  | <b>TYPE OF RESPIRATOR</b>   |
| Power sanding   | High efficiency particulate air (HEPA) filter respirator            |
| Hand sanding  | HEPA filter respirator  |
| Grinding  | Air-line respirator with laboratory-certified grade D breathing air |
| Sand blasting   | Air-line respirator with laboratory-certified grade D breathing air |

c. Before buying a *DIN*-approved respirator, the commander will request in writing that an approval be granted for the respirator.

(1) Requests will state—

(a) The make, model, description, and *DIN*-approval number of the respirator.

(b) Hazards that the respirator is designed to protect against.

(c) A POC.

(2) Commanders will send requests to the CHPPM-EUR (MCHB-AE-EI), CMR 402, APO AE 09180-0402.

#### **R-11. MEDICAL CLEARANCE**

The industrial hygienist will identify the workareas that require respiratory protection and those employees that are required to wear respirators. The supervisor of these workareas will refer the employee to the supporting occupational health nurse for a medical clearance before respirator use.

#### **R-12. MEDICAL SURVEILLANCE**

If the industrial hygienist identifies potential exposures to occupational hazards, employees will be referred to the supporting occupational health nurse for enrollment in a medical surveillance program.

#### **R-13. PAINTING INSTRUCTIONS AND ASSISTANCE**

a. Technical Manual 43-0139 provides information and guidance to personnel charged with painting and marking U.S. Army equipment.

b. Contact the local logistics assistance office, United States Army Materiel Command, Europe, for painting and respirator training assistance (DA Pam 738-750, table C-2).

## **APPENDIX S**

### **GROUND SUPPORT EQUIPMENT TIRE MAINTENANCE TRAINING**

#### **S-1. PURPOSE**

This appendix—

a. Provides policy and procedures to commanders who operate or service tactical ground support vehicles and equipment equipped with pneumatic tires and tubes.

b. Helps the operator, unit, direct support, and general support maintenance personnel care for, maintain, inspect, and repair pneumatic tires and inner tubes for ground support vehicles and equipment.

**NOTE:** This is not a new tire-training requirement for using-unit and support maintenance personnel. The basic AR, paragraph 7-11e, requires that commanders ensure personnel are trained in deflating, demounting, mounting, inflating, and classifying tires. Personnel who have documentation showing they have received tire training in USAREUR or elsewhere do not require retraining according to this appendix. Commanders may schedule tire training for personnel who need or request the training.

#### **S-2. REFERENCES**

a. AR 600-55, The Army Driver and Operator Standardization Program (Selection, Training, Testing, and Licensing).

b. AR 700-4, Logistics Assistance.

c. FM 55-30, Army Motor Transport Units and Operations.

d. TM 9-2610-200-14, Operator's, Unit, Direct Support and General Support Maintenance for Care, Maintenance, Repair, and Inspection of Pneumatic Tires and Inner Tubes.

e. USAREUR Regulation 350-1, Training in USAREUR.

#### **S-3. EXPLANATION OF TERMS**

##### **direct support (DS) maintenance repairer**

A soldier who is responsible for performing DS maintenance on tactical vehicles and equipment. This soldier is normally assigned to a divisional or non-divisional DS maintenance unit and is responsible for performing DS tasks prescribed in the maintenance allocation chart (MAC) of the applicable -20 series technical manual (TM). This includes performing tire classification according to this appendix. This term also applies to a DA civilian (DAC) or local national (LN) mechanic assigned to modification table of organization and equipment (MTOE) DS maintenance facility, who is responsible for performing DS maintenance on tactical vehicles and equipment.

##### **general support (GS) maintenance repairer**

Normally a DA civilian or LN mechanic assigned to a table of distribution and allowance (TDA) GS maintenance facility who is responsible for performing up to and including GS maintenance tasks prescribed in the MAC of the applicable -20 series TM. This includes performing tire classification. The term also applies to a soldier assigned to an MTOE GS maintenance unit responsible for performing up to and including GS maintenance on tactical wheeled vehicles and equipment.

##### **inspection**

Physical process of determining compliance with TM serviceability requirements.

##### **maintenance**

Action taken to keep materiel in a safe and serviceable condition or restore the materiel to that condition. Maintenance of materiel includes cleaning, inspecting, testing, servicing, adjusting, and classifying.

##### **operator and assistant operator**

A soldier, DA civilian, or LN employee who has been properly trained, licensed, and authorized according to AR 600-55 to operate specific tactical vehicles and equipment. This includes performing before, during, and after operation preventive maintenance checks and services (PMCS) prescribed in the applicable -10 series operator manual, including tire and wheel assembly checks.

**service**

The demounting and mounting of pneumatic tires on rim wheels and related activities, such as deflating and inflating tires.

**unit mechanic**

A soldier who is responsible for performing unit-level maintenance on tactical vehicles and equipment. This individual is normally assigned to the unit or battalion motor pool responsible for identifying and correcting maintenance faults, performing scheduled services, and unscheduled maintenance according to the applicable -20 series TM. This term also applies to a DA civilian or LN employee authorized to maintain tactical vehicles and equipment.

**vehicles and equipment**

All tactical trucks, tractors, trailers, semitrailers, buses, and off-road equipment equipped with pneumatic tires.

**S-4. GENERAL**

a. The basic AR, paragraph 7-11e, requires all commanders to ensure training is provided to all individuals who service single-piece or multi-piece rims and wheels used on tactical vehicles and equipment. Individuals who perform these tasks are required to demonstrate proficiency in their ability to perform specific tire, rim, and wheel tasks correctly and safely. This includes repairing flat tires and replacing worn-out tires. These tasks are to be evaluated and a record maintained documenting the evaluation.

b. For the purpose of this appendix, the training requirement in subparagraph a above applies to any person who is responsible for deflating, demounting, mounting, and inflating pneumatic tires.

**S-5. POLICY**

a. Personnel who have documentation showing they have received the tire training required in USAREUR or elsewhere are not required to be retrained according to this appendix. Commanders may schedule refresher tire training for personnel who need or request this training.

b. Tactical wheeled vehicle and equipment operators and assistant operators are responsible for replacing flat or worn tires with the spare tire and wheel assembly, checking and correcting tire pressure, and performing other before, during, and after operation checks according to the item's operator's TM PMCS table.

c. Using unit, DS, and GS maintenance personnel are responsible for repairing flat tires and tubes, including deflating, demounting, mounting, and inflating tires on a wheel assembly.

**NOTE:** Commanders may delegate this responsibility to a tactical wheeled vehicle or equipment operator or assistant operator if the operational situation requires. These individuals must first receive the training required in paragraph S-4.

d. Commanders of using units will—

(1) Establish procedures to ensure tactical vehicle and equipment operators, assistant operators, and unit maintenance personnel care for, maintain, inspect, and repair pneumatic tires and wheels as prescribed in the applicable TM.

(2) Establish procedures to inspect tires on vehicles during scheduled maintenance services to ensure tires are safe and serviceable.

(3) Ensure that tactical vehicle operators and assistant operators comply with the additional requirements in paragraph S-6.

(4) Ensure that training is recorded on the individual's DA Form 348, OF 346, or Unit-Level Logistic System automated OF 346 (AR 600-55 and FM 55-30).

e. Commanders with Organizational Maintenance Number 1 Common Tool Set (line item number W32593) will—

(1) Have at least two unit maintenance personnel trained in servicing tires (deflating, demounting, mounting, and inflating tires on a wheel assembly) according to the applicable equipment TM and TM 9-2610-200-14.

(2) Coordinate unit maintenance personnel tire training requirements with the local United States Army Tank-Automotive and Armaments Command (TACOM) logistics assistance representative (LAR) as required.

f. Commanders of DS and GS maintenance units and activities will have at least two inspectors trained in the inspection and classification of pneumatic tires according to TM 9-2610-200-14.

## **S-6. TIRE TRAINING**

a. The TACOM senior command representative (SCR) (AR 700-4) has agreed to—

(1) Have a LAR provide on-site unit, DS, and GS maintenance tire inspection, maintenance, and classification training on an individual and non-reimbursable basis when requested.

(2) Tailor tire training to the unit's needs. Training may include the following:

(a) Showing the video "Are Your Tires Safe?"

(b) Showing the video "How to Operate the Bishman 931A Tire Mounter-Demounter" and operating the mounter-demounter, when available in the unit and operational.

(c) A cursory review of the using units' tire-maintenance program by spot checking unit tactical vehicles and equipment to determine if—

1. Tires are inflated to the correct air pressure.

2. Tire's wear bar is visible.

3. Tires are the proper size and matched and installed according to tread design and degree of wear.

4. Wheel lugnuts, rims, and side rings are secure and serviceable.

5. Wheel stops are properly adjusted and locked.

6. Tires show signs of abnormal wear.

(3) Provide a statement of training (fig S-1 and fig S-2) to operator and unit, DS, and GS maintenance personnel who have demonstrated the ability to properly service rims, wheels, tires, and inner tubes in the following areas:

(a) Tire demounting and deflation.

(b) Wheel and rim inspection.

(c) Tire mounting and inflation.

(d) Use of the tire inflation cage and air hose.

(e) Tire inspection and classification.

b. If the name of the local TACOM LAR is unknown, contact the TACOM SCR (DSN 375-5074) for assistance.

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STATEMENT OF USING-UNIT TIRE TRAINING

date

This is to confirm that on the above date, \_\_\_\_\_ (name) \_\_\_\_\_ received the maintenance training required by AE Supplement 1 to AR 750-1, appendix S, and has successfully demonstrated the ability to maintain and repair pneumatic tires and inner tubes. Training did/did not include the operation of the Bishman 931A tire mounter-demounter.

(LAR's printed name and signature)

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**Figure S-1. Sample Statement of Using-Unit Tire Training**

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STATEMENT OF DS/GS MAINTENANCE TIRE TRAINING

date

This is to confirm that on the above date, \_\_\_\_\_ (name) \_\_\_\_\_ received the DS/GS maintenance training required by AE Supplement 1 to AR 750-1, appendix S, and has successfully demonstrated the ability to inspect, classify, maintain, and repair pneumatic tires and inner tubes. Training did/did not include the operation of the Bishman 931A tire mounter-demounter.

(LAR's printed name and signature)

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**Figure S-2. Sample Statement of DS/GS Maintenance Tire Training**

## **APPENDIX T MAINTENANCE OF TACTICAL VEHICLE CANVAS ITEMS**

### **T-1. GENERAL**

a. Tactical vehicle canvas items are class 9 cargo body tarpaulins, cab covers, driver and passenger seats, tailgate chain covers, Bradley fighting vehicle (BFV) water barrier curtains, and power generator set covers.

b. Field Manual (FM) 10-16 provides information on the general repair of vehicle canvas items.

### **T-2. POLICY**

a. Unit commanders will ensure personnel—

(1) Do not replace canvas items that are discolored or have small paint, grease, or other spots and stains. Minor spots and stains do not make canvas items unserviceable.

(2) Repair canvas items according to the applicable vehicle technical manual (TM) using inexpensive patches and adhesive in the canvas repair kit (line item number R75709).

**NOTE:** Common Table of Allowances (CTA) 50-909, table 61, authorizes the tentage repair kit as follows: “Per requirement in company/detachment size unit authorized canvas, tarpaulins (to include tarpaulins for trucks) and other canvas items (minimum 1 per unit).”

(3) Repair driver and passenger seats and backrests using inexpensive replacement seat covers available in the normal supply system through the motor pool, rather than putting the seats or backrests on a job order to support maintenance for repair.

**NOTE:** Seat covers and seat cover kits with lacing are available through the normal supply system for many tactical vehicles, including the commercial utility cargo vehicle, the high mobility multipurpose wheeled vehicle, 2½- and 5-ton series trucks, M915A1 line haul tractor, and heavy expanded mobility tactical truck.

(4) Use the Cannibalization Point in Kaiserslautern as an alternate source for canvas items.

(5) Repair BFV water barrier curtains according to TM 9-2350-284-20-1-2 using the prescribed patches and adhesive.

(6) Seal the seams of leaky plastic-coated cargo covers with adhesive (national stock number (NSN) 8040-00-262-9028 (pint), NSN 8040-00-262-9031 (quart), or NSN 8040-00-281-1972 (gallon)).

(7) Clean canvas items before sending them to support maintenance for repair.

b. Commanders of direct and general support maintenance units authorized military occupational specialty 43M (fabric repairer specialists) and canvas and leather repair tools and equipment will—

(1) Maintain a self-sufficient military capability and capacity to provide cost-effective class 9 canvas inspection, classification, and repair support to customer units. The maintenance expenditure limit (MEL) for canvas items is 65 percent of the cost of the item according to the current Federal Logistics Record (FED LOG).

(2) Not normally repair class 9 canvas items available in the supply system (for example, 2½-ton drivers seat cover) unless the supply source cannot meet the units' required delivery date and the 65 percent MEL is not exceeded.

(3) Provide basic using-unit-level canvas repair training to customer units on the use of the canvas repair kit, as required or on request.

**NOTE:** If the direct support unit's modification table of organization and equipment does not authorize a sewing machine, CTA 50-909, table 66, authorizes a sewing machine for direct support/general support canvas repair activities.

**APPENDIX U**  
**USAREUR BRAKE-TESTING POLICY FOR TACTICAL VEHICLES**

**SECTION I**  
**GENERAL**

**U-1. PURPOSE**

This appendix—

- a. Provides brake-testing policy and procedures for tactical wheeled vehicles in USAREUR. AE Regulation 58-1 provides brake testing policy for nontactical vehicles.
- b. Supplements brake-system checks and inspections required by equipment operator manuals and other related publications.

**U-2. APPLICABILITY**

Tactical units will use this appendix and brake-test-machine manufacturer operators manuals to test assigned and attached tactical wheeled vehicles and trailers with service brake systems.

**U-3. RESPONSIBILITIES**

Commanders will—

- a. Ensure assigned and attached tactical wheeled vehicles and trailers with service brake systems are tested according to the procedures in this appendix.
- b. Budget funds for annual calibration, service, unscheduled maintenance, and operator training. To the maximum extent possible and to minimize operational costs, commanders should include operator training whenever the brake-test machine requires calibration, service, and maintenance.
- c. Send requests for exemptions from the policy in this appendix through command channels to the USAREUR G4 (AEAGD-MD-P), Unit 29351, APO AE 09014-9351.

**U-4. EXCEPTIONS**

The brake systems of the following vehicles are exempt from the brake-machine test:

- a. Trailers, 3/4-ton and less, that are not designed to work with prime-mover brakes and have only a parking brake are exempt from the policy in this appendix. The trailers in (1) and (2) below are exempt from the brake-machine testing policy and will be tested using the trailer's technical manual (TM) procedures.
  - (1) Trailer, cargo, 1/4-ton, M416-series.
  - (2) Trailer, 3/4-ton, M101-series.
- b. Trailer, cargo, 1½-ton, M105-series, is exempt from the machine brake-testing policy only when normally towed by M113-, M548-, or M577-series tracked vehicles.
- c. Service and parking brakes of M1070 heavy equipment transporters (HETs) and HET M1000 semi-trailers will be tested according to the vehicle TM.
- d. Forklift and wheeled construction vehicle brake systems will be tested according to the equipment TM.
- e. U.S. Army tactical wheeled vehicles maintained in Greece, Italy, and Turkey are exempt from brake-machine testing. These countries do not use machines to test vehicle brakes.
- f. Units based in or deployed to countries that do not brake-machine test their own vehicles are not required to comply with the brake-machine test provisions of this appendix. Instead, the policy is to service and maintain brakes according to the respective vehicle TM (similar to procedures in the continental United States).

g. Units based in or deployed to a country that does not brake-machine test brakes do not have to brake-machine test their vehicle brakes with one exception: Vehicles that will be transporting hazardous material (HAZMAT) (for example, petroleum products, munitions) must be brake-machine tested before transporting HAZMAT. Requirements for HAZMAT movement are established in AE Regulation 55-4. DA Form 5988-E will serve as a Hazardous Vehicle Certification Permit (HVCP) when over stamped according to AE Regulation 55-4. Additionally, the date of the brake test and the due date of the next brake test (within 1 year) will be annotated on both DA Form 5987-E and DA Form 5988-E, which will be issued with each dispatched vehicle (para U-9).

#### **U-5. TRAINING ASSISTANCE**

a. Units needing technical training assistance in motor vehicle brake maintenance and troubleshooting should contact their supporting United States Army Tank-Automotive and Armaments Command (TACOM) logistics assistance representative (LAR) for help. TACOM LARs are not responsible for providing training assistance in brake-machine test procedures.

b. Paragraph U-13 provides guidance on where and how to obtain brake-machine test training.

### **SECTION II POLICY**

#### **U-6. TESTING FREQUENCY**

a. Vehicle brakes must be inspected visually and brake-machine tested—

- (1) Once a year (combine with annual service when practical).
- (2) After brake systems are repaired or adjusted.

b. Commanders are encouraged to inspect visually and brake-machine test vehicles—

- (1) Before a field exercise or road march.
- (2) That are not used regularly.
- (3) That have been involved in accidents with alleged brake failures (if the inspection and brake-machine test are feasible and appropriate).

c. Force modernization M-series tactical wheeled vehicles and trailers will be tested within 6 months after receipt by the owning unit. The brake system of European-manufactured tactical vehicles will be tested according to the manufacturer's recommended service interval.

#### **U-7. TESTS**

The machine brake-test will be the final authority for determining the serviceability of vehicle brakes. Brake-machine tests will be conducted according to the brake-machine test manufacturer's operator manual.

a. Organization mechanics will inspect tactical wheeled vehicles and trailers using preventive maintenance checks and services (PMCS) preoperational checks before conducting brake tests. Organization mechanics will correct pretest inspection deficiencies before performing a machine test. The five-stop test may be used under specific conditions (para U-12) to operationally test the brake system.

b. Maintenance officers in organizations with brake-testing machines will—

- (1) Ensure that enough funds are budgeted for operator training and machine repair and calibration.
- (2) Ensure that brake-machine operators receive training to operate their brake testers.
- (3) Ensure brake testing is performed according to procedures in the brake-test machine operator manual.
- (4) Review brake-test results at least once a month and use the results to improve brake maintenance.

c. Where brake-machine testing is not available, support will be coordinated with and provided by the supporting direct support unit (DSU), director of public works (DPW), or directorate of logistics (DOL).

(1) DSUs, DPWs, and DOLs will support tactical units on a reimbursable basis (except for nonreimbursable customers and units that have organic capability).

(2) Owing units should have a vehicle's brakes machine-tested when the vehicle is sent in for direct support maintenance or repairs. This will help avoid a special trip for brake testing.

d. Commercial testing by the *Technischer Überwachungsverein (TÜV)* (vehicle inspection station) or at another German-approved vehicle inspection station is authorized when brake-test machines at U.S. facilities are not available, inoperable, or too small. Commercial testing costs between €35 to €75 for one large three-axle truck. Commercial testing must be procured through the supporting regional contracting office. Commanders will plan for necessary contracting lead times.

#### **U-8. USAREUR-OWNED STOCKS**

a. The storage or repairing activity will machine-test brakes on wheeled vehicles from USAREUR stocks.

b. Brake testing will be incorporated in the maintenance cycle of tactical wheeled vehicles in USAREUR stocks.

c. Tactical wheeled vehicle brakes will be machine tested before being issued at storage sites with brake-testing machines.

d. Storage sites without a brake-testing machine may use the five-stop test (para U-12) in addition to the visual inspection (para U-10). The owning unit will machine test brakes of tactical vehicles issued from USAREUR stocks within 10 workdays from date of acceptance or delivery.

#### **U-9. RECORDING BRAKE TESTS**

Dispatch documentation under an automated or manual system must show the date of the last successful brake test and the date that the next brake test is due.

##### **a. Unit-Level Logistics System-Ground (ULLS-G) (Automated Procedures).**

(1) In ULLS-G, two steps are required to put the date of the last successful brake test on the DA Form 5988-E (table U-1) and the due date of the next brake test on the DA Form 5987-E (table U-2).

(a) The instructions in table U-1 explain how to put the date of the last successful brake test on the DA Form 5988-E.

(b) The instructions in table U-2 explain how to put the date that the next brake test is due as a special service on the DA Form 5987-E.

(2) A DA Form 5987-E and a current DA Form 5988-E must be issued with each vehicle dispatched. The "Dispatch with DA Form 5988-E" policy must always be followed when equipment is dispatched.

##### **b. The Army Maintenance Management System (TAMMS) Manual Procedures.**

(1) The motor sergeant will record successful brake tests on DD Form 314 as prescribed in DA Pamphlet 738-750. The letter "T" (in ink) will be used to indicate successful inspections in the date block. The "T" will be annotated as "Brake Tests" in the remarks section of the DD Form 314. The motor sergeant also will enter "Next Brake Test Due" and a date no later than 12 months after the inspection in the remarks section in pencil.

(2) The results of the last successful brake test, as recorded on the DA Form 2404 or ULLS-G DA Form 5988-E (fig U-1) and DA Form 5987-E (fig U-2), will be kept in the vehicle equipment record folder until the next annual brake test is made. Units with brake-test machines that print test results on ticker tapes may attach the tape to the completed DA Form 2404. The paper ticker-tape copy from the machine does not replace the DA Form 2404, DA Form 5988-E, or DA Form 5987-E.

| <b>Table U-1</b>   |   |
|--|---|
| <b>Instructions for Posting the Date of the Last Successful Brake Test on DA Form 5988-E</b> |   |
| <b>Step</b>  | <b>Instructions</b>   |
| 1  | From the ULLS-G Main Menu, scroll to menu item I (Operational Processes). Press enter. Scroll to menu item 3 (Maintenance Faults). Press enter for the Maintenance Faults screen. Highlight ADD FAULTS and press enter.   |
| 2  | At the Select Equip (Add) screen, in the Admin Number field, enter the vehicle-administration number. Press enter for the Maintenance Faults screen.  |
| 3  | On the Maintenance Faults screen, with the cursor in the Fault Date field, enter the current date. In the Fault Time field, enter the current time (hours and minutes). Press the tab key for the Fault Status Symbol field. Enter a dash (-). In the Fault Description field, enter the date of the last successful brake test as follows: "LAST BRAKE TEST: yyymmdd". |
| 4  | In the WHEN DISCovered field, enter A.  |
| 5  | In the HOW RECOgnized field, enter 099.   |
| 6  | In the FAILURE field, enter 799.  |
| 7  | In the MAINT TYPE field, enter S. Press enter. From the Select Equip (Add) screen, press the escape key three times.  |

| <b>Table U-2</b>   |   |
|--|---|
| <b>Instructions for Scheduling the Date of the Next Brake Test on DA Form 5987-E</b> |   |
| <b>Step</b>  | <b>Instructions</b>   |
| 1  | From the ULLS-G Main Menu, scroll to menu item J (Equipment Data Update). Press enter. Scroll to menu item 4 (Equipment Service Update). Press enter for the Equipment/Add Update screen.   |
| 2  | With the cursor in the DODAAC field, press the tab key for the Admin Number field. Enter the administration number of the vehicle being scheduled for the brake test. Press enter and answer the question, "Do you want to update scheduled service for equipment? (Y/N)". The answer must always be "Y" (Yes). Press enter twice and answer the question, "Do you want to update special service for equipment? (Y/N)." The answer must always be "Y" (Yes).   |
| 3  | On the Equipment Add/Update screen, in the "Other Service Due Data" section (Special Services): if line 2 is empty, go to step 6 below. If line 2 has an entry, delete all special services (lines 1 through 4) by holding down the control key and pressing the home key. Press enter for the Equipment Add/Update screen.<br><br><b>NOTE:</b> Before deleting all special services, print a copy of the Special Services screen by pressing the print-screen key. Use the printed copy to repost special services (according to step 5).        |
| 4  | Repeat step 2. Press enter for the Equipment Add/Update screen.   |
| 5  | If all special services (lines 1 through 4) were deleted in step 3, use the printed copy of the Special Services screen to reenter them on lines 1, 3, and 4.   |
| 6  | Enter T1 (T1 = brake test) on line 2. In the Date Due field, enter the date of the next scheduled brake test (normally the date of the next annual service). In the MI/HR/KM Due field, enter the miles, hours, or kilometers of the next annual service. Press enter.<br><br><b>NOTE:</b> Failure to enter T1 on line 2 will result in the brake-test-due date being erroneously displayed as the Next Lubrication Due on the DA Form 5987-E. If a different special service is scheduled on line 2, the T1 brake-test service takes precedence. |





### **c. Reporting Brake Test Failures.**

(1) The motor sergeant will report vehicles that have not passed the machine brake test but have passed the five-stop test as READY/AVAILABLE for readiness reporting purposes (AR 700-138). Vehicles that fail the five-stop test are unsafe to operate and will be rated NOT MISSION-CAPABLE for readiness reporting purposes.

(2) Vehicles that have not been machine tested, retested, or that have not passed a machine test within 20 workdays after the brake test due date will be considered NOT READY or AVAILABLE for readiness reporting purposes. Commanders may clear vehicles that have passed the five-stop test for limited operation (for example, readiness test, mission) following circled X instructions in the ULLS-G Users Guide or DA Pamphlet 738-750 as appropriate.

## **SECTION III PROCEDURES**

### **U-10. VISUAL INSPECTION**

The unit motor sergeant or other person designated by the commander will perform the visual inspection as stated in subparagraphs a through f below. The vehicle operator or assistant operator will help the inspector perform the visual inspection. The following items will be checked:

#### **a. Vehicle Cab Compartment.**

(1) Check the brake pedal free travel using the applicable manual for acceptable tolerances. If the manual does not specify tolerances, press the brake pedal with normal foot pressure. The pedal should stop no more than halfway to the floor.

(2) Press the brake pedal. The pedal should not stick and must return properly.

(3) Press the brake pedal with normal foot pressure three times and hold it down on the third depression. The pedal height should remain constant. The brake pressure retention check procedure, which is outlined in some vehicle manuals, may be used if applicable.

**b. Vehicle Air Compressor or Hydraulic Pump and Belts.** Check the vehicle air compressor or hydraulic pump and belts for proper operation, tightness, and cracks using the applicable manual for acceptable tolerances.

#### **c. Vehicle Undercarriage.**

(1) Before inspecting the undercarriage, ensure—

(a) The vehicle engine is off and the transmission is in neutral.

(b) The handbrake is set properly and at least the front and rear of one wheel is chocked.

(2) Have the vehicle operator press the brake pedal with normal foot pressure three times and maintain foot pressure on the third depression. Using a creeper, rag, and flashlight or droplight, proceed to the front of the vehicle undercarriage.

(a) Thoroughly check the flexible rubber brake hoses on air and hydraulic brake systems. Check the hoses for wear, chafes, cracks, cuts, crimps, leaks, bulges, or evidence of internal damage (TB 9-2300-405-14). Ensure that proper securing and mounting hardware are present and serviceable.

(b) Thoroughly check the brake system steel tubing (lines), connections, fittings, and bleeder valves for proper mounting and for leaks or restrictions that can hinder the flow of air or fluid. If copper has been used for the hydraulic brakeline, the vehicle will be removed from service until the copper line is replaced with a steel line. Check the lower portion of the wheel backing plate for evidence of air or hydraulic fluid leaks.

**d. Vehicle Exterior.** Have the vehicle operator press and release the brake pedal and check the stoplights for proper operation.

**e. Air Pressure Testing.** The compressed air system of American and European manufactured vehicles with full air and air-assisted brake systems will be operationally checked according to the manufacturers manual to ensure—

- (1) The low-air-pressure warning buzzer and light function correctly.
- (2) Air pressure gauges are operational and dry.
- (3) Air pressure builds up to minimum and maximum operating pressures in the prescribed times according to the vehicle TM.
- (4) The brake system is free of brake fluid and air leaks.

**f. Tire Pressure.** Ensure tires are serviceable, free of foreign material, and inflated to the correct pressure.

## U-11. MACHINE TESTING

**a. Brake-Test Machine.** A brake-test machine measures the braking force (in newtons) of each wheel or pair of wheels on a vehicle. To convert weight in force (newtons), multiply pounds by 4.54 (for example, 100 pounds x 4.54 = 454 newtons). A trained brake-machine operator will—

- (1) Conduct machine tests according to the machine's operating manual and the provisions of this appendix.
- (2) Run the brake-test machine until the machine locks up or the maximum readings are achieved, whichever occurs first.

**b. Test Results.** The motor sergeant will use DA Form 2404 to record test results. A sample DA Form 2404 is in figure U-3 (for trucks) and figure U-4 (for trailers).

**c. Service Brake Requirement.** The total braking force of the service brakes for trucks and trailers in relation to the vehicle weight must be as indicated in (1) and (2) below (service brake percentage).

- (1) Vehicles weighing 3.5 tons or less must achieve a service brake percentage of 50 percent or more.
- (2) Vehicles weighing 3.5 tons and more must achieve a service brake percentage of 45 percent or more.
- (3) The service brake percentage is computed by dividing the total vehicle braking force (in newtons) divided by the curb weight of the vehicle (in newtons) multiplied by 100.
- (4) The total measured braking force is the measured braking force on all wheels or pairs of wheels (test total).
- (5) The vehicle weight is shown as the curb weight on the vehicle dataplate or in the specification section of the operator manual. The curb weight is the weight of the vehicle with basic issue items (BIIs) installed and fluids and lubricants filled. Permanently loaded cargo vehicles, including vehicles with shelters, are not required to be unloaded before the brake test. Estimate the weight of the cargo and shelter and combine it with the curb weight of the vehicle. For safety reasons, vehicles carrying ammunition, missiles, and petroleum products will be unloaded for the brake test.

**d. Uniform Braking Requirement.** The braking force difference between wheels (or pairs of wheels) on the same axle may not be greater than 25 percent of the higher force measurement. Two formulas will be used to determine the braking force difference percentage:

- (1) Divide the lower braking force measurement (in newtons) by the higher braking force measurement (in newtons) and multiply the result by 100 to get the axle braking percentage.
- (2) Subtract the axle braking percentage from 100 to find the braking force difference percentage.

**e. Parking Brake Requirement.** Test the parking brake according to the vehicle's technical manual.

### f. Standards.

**(1) Service Brake Test.** Service brakes will be tested according to subparagraph c above. Vehicles that do not attain the total braking force specified in subparagraph c above fail the test.

| EQUIPMENT INSPECTION AND MAINTENANCE WORKSHEET   |             |   |           |          |   |               |         |                        |  |                       |
|--|-------------|---|-----------|----------|---|---------------|---------|------------------------|--|-----------------------|
| For use of this form, see DA PAM 738-750 and 738-751; the proponent agency is DCSLOG   |             |   |           |          |   |               |         |                        |  |                       |
| 1. ORGANIZATION  |             |   |           |          | 2. NOMENCLATURE AND MODEL   |               |         |                        |  |                       |
| 3. REGISTRATION/SERIAL/NSN   |             |   | 4a. MILES | b. HOURS | c. ROUNDS FIRED   | d. HOT STARTS | 5. DATE | 6. TYPE INSPECTION     |  |                       |
|  |             |   |           |          | NA  | NA            |         | Machine Brake Test     |  |                       |
| 7. APPLICABLE REFERENCE  |             |   |           |          |   |               |         |                        |  |                       |
| TM NUMBER  |             |   | TM DATE   |          | TM NUMBER   |               |         | TM DATE                |  |                       |
| COLUMN a - Enter TM item number.<br>COLUMN b - Enter the applicable condition status symbol.<br>COLUMN c - Enter deficiencies and shortcomings.  |             |   |           |          | COLUMN d - Show corrective action for deficiency or shortcoming listed in Column c.<br>COLUMN e - Individual ascertaining completed corrective action initial in this column.   |               |         |                        |  |                       |
| STATUS SYMBOLS   |             |   |           |          |   |               |         |                        |  |                       |
| "X" - Indicates a deficiency in the equipment that places it in an inoperable status.<br>CIRCLED "X" - Indicates a deficiency, however, the equipment may be operated under specific limitations as directed by higher authority or as prescribed locally, until corrective action can be accomplished.<br>HORIZONTAL DASH "-" - Indicates that a required inspection, component replacement, maintenance operation check, or test flight is due but has not been accomplished, or an overdue MWO has not been accomplished. |             |   |           |          | DIAGONAL "/" - Indicates a material defect other than a deficiency which must be corrected to increase efficiency or to make the item completely serviceable.<br>LAST NAME INITIAL IN BLACK, BLUE-BLACK INK, OR PENCIL - Indicates that a completely satisfactory condition exists.<br>FOR AIRCRAFT - Status symbols will be recorded in red. |               |         |                        |  |                       |
| ALL INSPECTIONS AND EQUIPMENT CONDITIONS RECORDED ON THIS FORM HAVE BEEN DETERMINED IN ACCORDANCE WITH DIAGNOSTIC PROCEDURES AND STANDARDS IN THE TM CITED HEREON.   |             |   |           |          |   |               |         |                        |  |                       |
| 8a. SIGNATURE (Person(s) performing inspection)  |             |   | 8b. TIME  |          | 9a. SIGNATURE (Maintenance Supervisor)  |               |         | 9b. TIME               |  | 10. MANHOURS REQUIRED |
|  |             |   |           |          |   |               |         |                        |  |                       |
| TM ITEM NO.  | STATUS      | DEFICIENCIES AND SHORTCOMINGS   |           |          | CORRECTIVE ACTION   |               |         | INITIAL WHEN CORRECTED |  |                       |
| a  | b           | c   |           |          | d   |               |         | e                      |  |                       |
|  |             | I SERVICE BRAKE RESULTS (Uniform  |           |          | Braking Requirement for Wheels on Same Axle)  |               |         |                        |  |                       |
| Front Axle   | Left Right: | ___ NEWTONS WITHIN 25%  |           |          | YES, PASSED [ ] NO, FAILED [ ]  |               |         |                        |  |                       |
| Rear Axle 1  | Left Right: | ___ NEWTONS WITHIN 25%  |           |          | YES, PASSED [ ] NO, FAILED [ ]  |               |         |                        |  |                       |
| Rear Axle 2  | Left Right: | ___ NEWTONS WITHIN 25%  |           |          | YES, PASSED [ ] NO, FAILED [ ]  |               |         |                        |  |                       |
| Rear Axle 3  | Left Right: | ___ NEWTONS WITHIN 25%  |           |          | YES, PASSED [ ] NO, FAILED [ ]  |               |         |                        |  |                       |
| Total Axles:   |             | ___ NEWTONS (Total Braking Force)   |           |          |   |               |         |                        |  |                       |
|  |             | II SERVICE BRAKE RESULTS (Total   |           |          | Braking force all axles)  |               |         |                        |  |                       |
|  |             | a. Compute curb weight of vehicle in Newtons:                                   |           |          |   |               |         |                        |  |                       |
|  |             | Vehicles Curb/Empty Weight (Lbs)  |           |          | ___ x 4.54 = ___ (Newtons)  |               |         |                        |  |                       |
|  |             | b. Compute Ratio of BRAKING FORCE in  |           |          | Newtons to VEHICLE WEIGHT in Newtons and multiply by 100.   |               |         |                        |  |                       |
|  |             | BRAKING FORCE ___ divided by VEH  |           |          | WEIGHT (Newtons) ___ x 100 = ___ % Service Brake Percentage   |               |         |                        |  |                       |
|  |             | c. Standard for TRUCKS weighing 3.5 tons Standard for TRUCKS weighing less than |           |          | or more is 45 percent or greater. 3.5 tons is 50 percent or greater.  |               |         |                        |  |                       |
|  |             | d. Results: compare service brake percent-                                      |           |          | age (b above) ___ within standard (c above) ___   |               |         |                        |  |                       |
|  |             | IF EQUAL TO OR EXCEEDS STANDARD   |           |          | : VEHICLE PASSED [ ]  |               |         |                        |  |                       |
|  |             | IF LESS THAN STANDARDS:   |           |          | : VEHICLE FAILED [ ]  |               |         |                        |  |                       |

DA FORM 2404, APR 79

Replaces edition of 1 Jan 64, which will be used

USAPPC V1.10

Figure U-3. Sample DA Form 2404 for Trucks.

| EQUIPMENT INSPECTION AND MAINTENANCE WORKSHEET   |             |   |   |  |                             |
|--|-------------|---|---|--|-----------------------------|
| Far use of this form, see DA PAM 738-750 and 738-751; the proponent agency is DCSLOG   |             |   |   |  |                             |
| 1. ORGANIZATION  |             |   | 2. NOMENCLATURE AND MODEL   |  |                             |
| 3. REGISTRATION/SERIAL/MSN   | 4a. MILES   | b. HOURS                                      | c. ROUNDS HIRED<br>NA   | d. HOT STARTS<br>NA                    | 5. DATE                     |
| 6. TYPE INSPECTION<br>Machine Brake Test   |             |   |   |  |                             |
| 7. APPLICABLE REFERENCE  |             |   |   |  |                             |
| TM NUMBER  |             | TM DATE                                       |   | TM NUMBER                              |                             |
| TM DATE  |             | TM DATE                                       |   |  |                             |
| COLUMN a – Enter TM item number.<br>COLUMN b – Enter the applicable condition status symbol.<br>COLUMN c – Enter deficiencies and shortcomings.  |             |   | COLUMN d – Show corrective action for deficiency or shortcoming listed in Column c.<br>COLUMN e – Individual ascertaining completed corrective action initial in this column.   |  |                             |
| STATUS SYMBOLS   |             |   |   |  |                             |
| "X" – Indicates a deficiency in the equipment that places it in an inoperable status.<br>CIRCLED "X" – Indicates a deficiency, however, the equipment may be operated under specific limitations as directed by higher authority or as prescribed locally, until corrective action can be accomplished.<br>HORIZONTAL DASH "-" – Indicates that a required inspection, component replacement, maintenance operation check, or test flight is due but has not been accomplished, or an overdue MWO has not been accomplished. |             |   | DIAGONAL "/" – Indicates a material defect other than a deficiency which must be corrected to increase efficiency or to make the item completely serviceable.<br>LAST NAME INITIAL IN BLACK, BLUE-BLACK INK, OR PENCIL – Indicates that a completely satisfactory condition exists.<br>FOR AIRCRAFT - Status symbols will be recorded in red. |  |                             |
| ALL INSPECTIONS AND EQUIPMENT CONDITIONS RECORDED ON THIS FORM HAVE BEEN DETERMINED IN ACCORDANCE WITH DIAGNOSTIC PROCEDURES AND STANDARDS IN THE TM CITED HEREON.   |             |   |   |  |                             |
| 8a. SIGNATURE (Person(s) performing inspection)  |             | 8b. TIME                                      |   | 9a. SIGNATURE (Maintenance Supervisor) |                             |
|  |             |   |   | 9b. TIME                               |                             |
|  |             |   |   | 10. MANHOURS REQUIRED                  |                             |
|  |             |   |   |  |                             |
| TM ITEM NO.<br>a   | STATUS<br>b | DEFICIENCIES AND SHORTCOMINGS<br>c            | CORRECTIVE ACTION<br>d  |  | INITIAL WHEN CORRECTED<br>e |
|  |             | I SERVICE BRAKE RESULTS (Uniform              | Braking Requirement for Wheels on Same Axle)  |  |                             |
| Front Axle   | Left Right: | ___ NEWTONS WITHIN 25%                        | YES, PASSED [ ] NO, FAILED [ ]  |  |                             |
| Rear Axle 1  | Left Right: | ___ NEWTONS WITHIN 25%                        | YES, PASSED [ ] NO, FAILED [ ]  |  |                             |
| Rear Axle 2  | Left Right: | ___ NEWTONS WITHIN 25%                        | YES, PASSED [ ] NO, FAILED [ ]  |  |                             |
| Rear Axle 3  | Left Right: | ___ NEWTONS WITHIN 25%                        | YES, PASSED [ ] NO, FAILED [ ]  |  |                             |
| Total Axles:   |             | ___ NEWTONS (Total Braking Force)             |   |  |                             |
|  |             | II SERVICE BRAKE RESULTS (Total               | Braking force all axles)  |  |                             |
|  |             | a. Compute curb weight of vehicle in Newtons: |   |  |                             |
|  |             | Vehicles Curb/Empty Weight (Lbs)              | ___ x 4.54 = ___ (Newtons)  |  |                             |
|  |             | b. Compute Ratio of BRAKING FORCE in          | Newtons to VEHICLE WEIGHT in Newtons and multiply by 100.   |  |                             |
|  |             | BRAKING FORCE ___ divided by VEH              | WEIGHT (Newtons) ___ x 100 = ___ %<br>Service Brake Percentage  |  |                             |
|  |             | c. Standard for TRAILERS is 45 percent or     | greater.  |  |                             |
|  |             | d. Results: compare service brake percent-    | age (b above) ___ within standard (c above) ___   |  |                             |
|  |             | IF EQUAL TO OR EXCEEDS STANDARD               | : VEHICLE PASSED [ ]  |  |                             |
|  |             | IF LESS THAN STANDARDS:                       | : VEHICLE FAILED [ ]  |  |                             |

DA FORM 2404, APR 79

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USAPPG V1.1E

Figure U-4. Sample DA Form 2404 for Trailers

**(2) Common Axle Test.** The difference in force between wheels or a pair of wheels on a common axle may not exceed 25 percent of the greater force when tested according to subparagraph d above. Vehicles that exceed the 25-percent difference in braking force fail the test.

**(3) Parking Brake Test.** No brake machine test required. Inspect and test the parking brake according to the vehicle's technical manual.

**NOTE:** When the standards in (1) through (3) above differ from those prescribed by other NATO countries, the host-country standards will be used.

**g. Tractor-Trailer Requirement.** Tractors and trailers will be tested separately based on curb weight.

**h. Tightening Vehicle Brakes.** Unit personnel will not tighten vehicle brakes to pass the machine-brake test. Unit personnel will perform major and minor brake adjustments according to instructions in the vehicle's maintenance manual. The wheels of vehicles with manually adjusted brakes must be raised from the ground to adjust brakes properly.

## U-12. THE FIVE-STOP TEST

a. Personnel may use the five-stop test to test brakes—

(1) When the supporting brake-test machine is temporarily out of order. This one-time authority must be administered before the brake-test due date and is valid for 20 workdays.

(2) That have undergone major repair or adjustment while in the field. This authority expires 20 workdays after the vehicle returns to the homestation.

(3) That have failed the machine test or retest. Unit commanders may authorize a mission-capable vehicle that has passed the five-stop test to be driven directly to a repair facility when the vehicle cannot be repaired quickly at the test site.

(4) As an exception to policy for a period not to exceed 6 months with approval of the USAREUR G4 (AEAGD-MD-P, DSN 370-8282). Commanders will send requests for exception to policy through command channels (para U-3). The exception to policy is to give commanders enough time to acquire and install the proper brake-test machine.

b. The five-stop test may be used instead of the brake-machine test to determine the serviceable condition of tactical vehicle service brakes only under unique situations (a above).

c. Only the unit motor sergeant or other person appointed by the commander will conduct the five-stop test—

(1) In a safe area and in a manner that will not injure personnel or damage property if the brake system fails.

(2) As follows:

(a) Drive the vehicle forward on a hard, level, preferably dry road surface at 25 miles per hour.

(b) Press the brake pedal with maximum effort until the vehicle stops.

(c) Bring the vehicle back to 25 miles per hour and repeat the procedure in (a) and (b) above at least four more times. The vehicle must come to a stop after application of the brake without pulling to either side. This result must happen five times for the vehicle to pass the five-stop test.

d. The unit motor sergeant or other person appointed by the commander will—

(1) Immediately remove from service any vehicle that fails the five-stop test.

(2) Verify brake capability using the five-stop test when the vehicle must be moved to a different facility.

(3) Refer to section V of this appendix for helpful hints to solve brake imbalance problems.

**SECTION IV  
OPERATORS AND EQUIPMENT**

**U-13. OPERATOR SELECTION AND TRAINING**

a. The motor officer or sergeant will interview maintenance personnel and carefully screen their records to determine whether or not they have the ability, judgment, and proper attitude to become competent operators before they are trained to operate brake machines.

(1) Only maintenance persons who have been properly trained, tested, and confirmed will be permitted to conduct brake-machine testing.

(2) Only the most capable persons should be selected as needed.

b. The motor officer or sergeant will—

(1) Conduct refresher training periodically or more frequently as required.

(2) Evaluate operators at least once a year to ensure they are conducting the brake-machine test properly.

c. Commanders may have a maintenance warrant officer or noncommissioned officer (NCO) in the rank of staff sergeant or higher receive brake-machine operator training from a manufacturer. Commanders may use the manufacturer trained warrant officer or NCO to train and confirm other maintenance personnel to operate the same model brake test machine. However, these maintenance personnel may not train and confirm other maintenance personnel.

d. The following sources provide brake-machine test training, if the trainers are certified by the brake-machine test manufacturer:

(1) Maintenance assistance and instruction team (MAIT) instructors.

(2) DOL and DPW maintenance supervisors, inspectors, and mechanics.

e. Another training source is by contracting a trainer from a brake-machine-test manufacturer. The Customer Service Office, Base Operations Maintenance Center, Würzburg, Germany (DSN 350-7225/6840), will help arrange for reimbursable training.

f. Commanders will confirm trained brake machine operators (b above) using the format in figure U-5 or by making an entry on DA Form 348 or OF 346 or the ULLS-G equivalent.

|  |  |
|--|--|
| (DATE)   | CERTIFICATION OF BRAKE-TEST MACHINE OPERATOR |
| This is to confirm that (NAME) received (NUMBER) hours of training from (INSTRUCTOR) on (DATE) in operation of the (MODEL) brake-test machine and is qualified to test motor vehicle brakes. |  |
| (COMMANDER'S<br>SIGNATURE<br>BLOCK)  |  |

**Figure U-5. Format for Confirming Brake-Test Machine Operator Training**

## **U-14. AUTHORIZATION, ACQUISITION, AND ACCOUNTABILITY**

a. Brake-testing machines are nonstandard items that must be procured locally. Commanders will go through the local contracting office to have specific brake-test machine manufacturers—

(1) Repair and calibrate brake-test machines. Calibration will be requested only when required by the manufacturer's operator manual.

(2) Train brake-test machine operators.

b. This appendix and Common Table of Allowances (CTA) 50-909 provide authority for brake-test stands (line item number T54171). CTA 50-909, table 66, authorizes one brake test machine "per maintenance activity required to test braking systems on wheeled vehicles" with approval of the unit's next higher headquarters. Maintenance activities include—

(1) DS and general support tables of distribution and allowances (TDA) and modification table of organization and equipment (MTOE) maintenance activities.

(2) 29th Support Group.

(3) Tactical using units with organic maintenance capability.

c. Suggested funding sources include the Quick Return on Investment Program (AR 5-4), the Department of the Army Productivity Improvement Program, and the Operation and Maintenance, Army, Program 2 (P2). A brake-test machine costs between \$30,000 and \$60,000, depending on its size.

d. Property accountability of brake-test machines will be according to AR 710-2.

## **U-15. OTHER BRAKE-TESTING EQUIPMENT**

Only brake-test machines that measures braking retardation at each wheel on the same axle and between wheels on different axles may be used. To use other types of brake machines, commanders must have approval from the USAREUR G4 (AEAGD-MD-P).

## **SECTION V**

### **BRAKE-MACHINE-TEST TIPS**

#### **U-16. GENERAL**

This section lists problem areas that could cause vehicles with shoe or disc brakes of air, hydraulic, air-hydraulic, and air-service brake systems to have unacceptable limits of imbalances and fail the brake-machine test.

#### **U-17. BACKING PLATE**

Extreme mechanical friction may be caused by the indentation made in a backing plate at the point of brake shoe contact. This will cause retarding of the brake application on that wheel. This condition usually appears after brake shoes are replaced. The new shoe "hangs up" in the ledge until enough hydraulic or air pressure has developed to move it.

#### **U-18. BRAKE ADJUSTMENT**

Unequally adjusted brakes will cause one brake to contact the drum before the other. Some brakes are designed with self-adjusters, eliminating the need for periodic manual adjustment. Occasionally, one of the self-adjusters fails to compensate for lining wear. This will cause the properly adjusted brake to apply before the wheel with the defective adjuster.

#### **U-19. BRAKE DRUM**

Actual stretching of the brake drum is possible if drums are worn or machined beyond prescribed limits. A rise in temperature increases the radius of the drum and, in many instances, reduces the brake shoe. When these factors exist, the drum friction surface is reduced, which results in an even higher temperature and an increased rate of brake fade.

#### **U-20. BRAKE LINING**

A brake lining worn beyond prescribed limits causes brake imbalance. Overheated brakes destroy the lining by forming a glaze on the lining surface. The glazed surface offers less friction to the brake drum or rotor, which reduces brake efficiency.

### **U-21. BRAKE SHOES AND BRAKE LININGS FOR 2½-TON TRUCKS**

The entire set of four brake shoes or linings on the axle (for example, of 2½-ton vehicles) must be replaced for safety and brake balance. The four must be either all asbestos or all nonasbestos and should have the same color-code markings. These markings indicate they are of the same composition. Brake shoes must be replaced in sets on a given axle assembly or suspension system to preserve brake balance.

### **U-22. BRAKE SHOE RETRACTING SPRING**

A weak or broken shoe-retracting spring will allow one shoe to contact the drum before the other. This will result in brake imbalance.

### **U-23. BRAKE TESTING VEHICLES WITH COUPLED DOUBLE AXLES ON ROLL TEST BEDS**

Limited brake-testing of vehicles with two coupled driving axles is possible. The following points will be considered when brake-testing these vehicles:

a. If a differential is installed between the two coupled-axles that permit different speeds of approximately 2.5 kilometers per hour (the speed of the brake-test stand) at the axles during the brake test (2 to 5 minutes), the brake test may be executed on the roll testbed without problems. The two axles may be tested like single axles in this case.

b. If no differential between the axles exists, both axles are rigidly coupled. In this case, use one of the following procedures should be used:

(1) Lift the wheel of the axle that is not placed on the test stand and pinch the compressed-air line of the wheel-brake cylinder. During the brake test, the lifted wheel must be able to turn with the wheels standing on the brake-test stand (at a double rate of revolutions). Since the wheel-brake cylinder has been pinched off, there will be almost no retroactive effect on the braking forces of the wheels on the brake-test stand.

(2) Install idling rollers in front of and behind the test stand. The wheels of the half of the double axle that is not tested at that moment can move freely on the idling rollers if the compressed air supply to the wheels on the half of the axle not being tested can be blocked. A reasonable test cannot be conducted without blocking the compressed air. Braking forces of the wheels standing on the idling rollers are sent to the wheels of the tested axle and an incorrect result will be shown.

(3) Loosen the drive shaft between the axles or remove the stub shaft on the axle that will not be tested. In general, loosening the drive shaft or removing the stub shaft is not easy and should be done only as an exception.

c. On plate testbeds, the braking forces of the two right and left wheels of the double axle may be measured using the same method used to measure vehicles with rigidly coupled axles.

d. Always follow instructions in the brake-test machine operator manual.

### **U-24. HYDRAULIC LINE**

A brake imbalance may be caused by a hydraulic-line restriction in a one-wheel brake line. This is usually caused by an internally deteriorated flexible hose between the frame and wheel assembly. Foreign matter in a line could partially block fluid passage. Accidental flattening of a metal-brake line (for example, from a flying stone) also could cause the problem.

### **U-25. IMPROPER BRAKE ASSEMBLY**

Some vehicle brake systems have primary and secondary brake shoes. A brake imbalance will occur if the shoes are incorrectly positioned.

### **U-26. LINING CONTAMINATION**

a. Lining contaminated with fluid such as oil, grease, brake fluid, or water will cause a brake imbalance. The behavior of the brakes will vary depending on the type, amount, and age of the fluid. In some instances, the brake force will be momentarily very high. As the lining surface is heated, the contaminant becomes a lubricant, causing the brake force to fall below that of the opposite wheel. If liquid contamination is great (for example, immediately after fording a vehicle in a stream), very low or no brake force will develop in that wheel.

b. A small amount of contamination on a lining will cause an imbalance until the lining is replaced. A small amount of brake fluid on a lining may not be visible. After several applications, brakes may appear normal. When the brakes cool down, the imbalance returns. Often the brake assembly may appear dry.

(1) Closer examination should be made by looking for fluid leakage under the dust boots of the wheel cylinders. Dampness at this point indicates leaking wheel cylinder cups. This seepage turns to gas in the heated brake assembly. As it cools, it permeates the lining and causes the contamination.

(2) Contamination may be evident in the brake dust. Normal dust is dry and powdery, while the dust in contaminated brakes appears dark and heavy.

(3) Disc-brake pads can become contaminated from road splash.

#### **U-27. SPONGY BRAKE PEDAL**

Air in hydraulic lines can cause a spongy brake pedal because of air compressibility. This usually occurs if the mechanic forgets to bleed the system thoroughly after replacing the wheels, brake hoses, lines, and master or air hydraulic cylinders.

#### **U-28. TIRES**

a. Worn tires reduce rolling resistance; low tire pressure increases rolling resistance. This type of resistance is observable on the brake-force gauge.

b. Wet or icy tires may not come up to the speed of the brake motors. If this occurs, do not stop the motors, but let the brake motors continue to rotate the wheels for a few seconds to dry the tires.

#### **U-29. WHEEL CYLINDERS**

Corrosion buildup between the piston and wheel cylinder bore will cause unwanted mechanical friction. Disc-brake pistons also can become sticky or seize, causing improper mechanical application. This corrosion may make the piston sluggish in application or totally inoperative.

**APPENDIX V**  
**M1/M1A1 ABRAMS TANK RECOVERY AND EVACUATION POLICY**

**V-1. PURPOSE**

This appendix establishes recovery and evacuation policy for M1/M1A1 tanks in USAREUR.

**V-2. REFERENCES**

- a. Field Manual (FM) 9-43-2, Recovery and Battlefield Damage Assessment and Repair.
- b. PS Magazine, The Preventive Maintenance Monthly (issues 408, 422, 447, and 553).

**V-3. APPLICABILITY**

This policy applies to—

- a. Units equipped with the M1/M1A1 tank.
- b. Maintenance and transportation units that support M1/M1A1 tank units.

**V-4. RESPONSIBILITIES**

- a. The USAREUR G1 will—

- (1) Monitor towing accidents caused by improper recovery procedures.
- (2) Implement safety countermeasures as necessary.

- b. The USAREUR G4 (AEAGD-MD-P) will issue policy and perform general staff supervision of recovery and evacuation operations.

- c. Unit commanders will—

- (1) Emphasize the safe conduct and supervision of M1/M1A1 tank recovery and evacuation operations.
- (2) Establish, maintain, and conduct sustainment-training programs for recovery and evacuation crews and supervisors.

**V-5. POLICY**

- a. Unit commanders will—

- (1) Ensure that only trained recovery personnel with an additional skill identifier of H8 or personnel who have completed a formal unit-training program engage in M1/M1A1 tank recovery and evacuation operations. The Seventh Army Training Command (AEAGC-TD-C), Unit 28038, APO AE 09112-8038 (DSN 476-2655), will provide an exportable recovery and evacuation training package.

- (2) The formal training will be recorded on the individual's DA Form 348, OF 346, or Unit Level Logistics System—Ground automated OF 346 (AR 600-55 and FM 55-30).

- (3) Develop a recovery training-sustainment program that stresses training to technical and field standards.

- (4) Ensure the unit maintenance standing operating procedure explains M1/M1A1 tank recovery and evacuation operations.

- (5) Ensure unit personnel follow the procedures in subparagraph b below.

- b. Unit personnel will—

- (1) Repair M1/M1A1 tanks at the breakdown site when possible.

(2) Go to the nearest roadway location or maintenance collection point (MCP) where repairs can be made when on-site repair is not possible within about 2 hours.

(3) Use heavy equipment transporters as much as possible to move M1/M1A1 tanks from the road or brigade-support area MCP.

(4) Conduct recovery and evacuation operations according to technical and field manual procedures and published safety policy. The following four areas require command emphasis:

(a) When towing an M1/M1A1 tank, use an M88A1 or another M1/M1A1 tank as a holdback vehicle, even when using a tow bar.

**NOTE:** Never allow personnel to ride on or in a towed vehicle.

(b) When using a tow bar, do not exceed 5 miles per hour. When using tow cables (both tow cables must be used), do not exceed 2 miles per hour.

(c) Use only a tow bar with an improved clevis installed (national stock number (NSN) 5340-01-267-2908). The complete tow bar with the improved clevis is NSN 2540-01-267-2912. An improved clevis may be used for towing cross-country and has a rated capacity of 70 tons.

(d) When using M1/M1A1 tanks for similar vehicle recovery, do not allow the rear of either the towing or the holdback tank to face the rear of the disabled tank. Exhaust heat damage to the disabled tank could result.

c. FM 9-43-2 and PS Magazine provide towing guidelines. Unit publications clerks can order back issues of PS Magazine from the United States Army Publishing Directorate. Back issues may also be ordered or viewed at the PS Magazine website at <http://www.logsa.army.mil/psmag/pshome.html>.