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HEADQUARTERS, U.S. ARMY MEDICAL DEPARTMENT ACTIVITY
Fort Carson, Colorado 80913-4604

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Maintenance of Supplies and Equipment
MAINTENANCE OF MEDICAL EQUIPMENT
Supplementation of this publication is prohibited

History: This regulation was originally published 21 May 92. This revision is the sixth printing.

Summary: This regulation establishes policy and guidance of Maintenance of Medical Equipment Maintenance of Supplies and Equipment.

Applicability: The information contained within applies to all staff of USA MEDDAC, Fort Carson, CO 80913, both military and civilian.

Proponent and exception authority: The proponent agency for this regulation is the Medical Maintenance Branch, Logistics Division. The proponent has the authority to approve exceptions to this regulation that are consistent with controlling directives.

Army management control program: This regulation is not subject to the requirements of AR 11-2, as it contains no internal management control provisions.

Suggested improvements: Users are invited to send comments and improvements on DA Form 2028 (Recommended Changes to Publications) to the Commander, MEDDAC, ATTN: MCXE-LOG-EM, Fort Carson, CO 80913-4604.

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TABLE OF CONTENTS

- Purpose – Page 1
- Reference – Page 1
- Explanation of Responsibilities – Page 1
- Maintenance Support Procedures – See Appendix A
- Receipt, Turn-In, and Disposition of Medical Equipment – See Appendix B
- Joint Commission of Accredited Healthcare Organizations (JCAHO) – See Appendix C
- Appendix A – Page 3
- Appendix B – Page 6
- Appendix C – Page 8

1. PURPOSE. This regulation prescribes principles, policies, and assigns responsibilities for an integrated maintenance program which will result in safe, reliable, maintainable, and supportable medical equipment within activities of USAMEDDAC, USADENTAC, VETCOM, Fort Carson, Colorado. This equipment maintenance and maintenance-related functions for the ease of user reference. It provides uniform guidance and direction to standardize operating procedures.

2. REFERENCES.

- a. AR 40-61
- b. AR 735-5
- c. AR 750-1

- d. DA Pamphlet 710-2-2
- e. DA Pamphlet 738-750
- f. National Fire Prevention Association (NFPA) Manual 99.
- g. TB MED 750-1
- h. TB MED 7
- i. Joint Commission on Accreditation of Healthcare Organizations (JCAHO) manual.

3. EXPLANATION OF RESPONSIBILITIES.

- a. The Commander, USAMEDDAC will analyze the maintenance operation based on MEDDAC's Mission Tasks List and the following factors to effect maintenance support of that Mission: Command directives, Resources (personnel & operational budget), and TMDE.
- b. The Deputy Commander for Clinical Services will ensure compliance with, and evaluate clinicians and clinical staff on the equipment user support and performance programs.
- c. Chief, Logistics Division will ensure that:

(1) Requested tools and test equipment are given adequate priority on CEEP and MEDCASE procurement actions based on true urgency.

(2) Medical equipment repairers are exempt from additional duties, when long-term maintenance missions are effected.

(3) Formal manufacturer's training & temporary duty is programmed into the budget.

(4) Medical materiel complaints are reported and/or corrected.

d. Chief, Equipment Management Branch will ensure that:

(1) The accountability & maintenance of the Army-owned medical equipment is effectively performed throughout its life cycle.

(2) Medical and non-medical equipment is validated and tested upon receipt, and periodically during each year.

(3) User Error Reports are maintained with copies of each report be furnished to the Safety Manager, Quality Improvement/Risk Management Coordinator, and the Deputy Commander for the Clinical Services, or the Deputy Commander for Administration.

(4) Formal training objectives and requirements are justified.

(5) Every aspect of Equipment Management Branch is planned and supervised.

(6) Shop personnel are improving the production control and shop operation with emphasis on work accomplishment at the lowest possible level.

(7) All correspondence that leaves Equipment Management Branch is reviewed and approved.

(8) The Command and Medical staff are consulted as necessary to provide information and support.

e. The Chief of every careline, department or service will analyze and evaluate equipment functionality, staff training and equipment availability for patient care, ensuring user maintenance programs are included in annual performance evaluations of all supervisors.

f. User level maintenance is a supervisory responsibility. Identifying equipment shortages and malfunctions is the responsibility of supervisors at every level. Each activity shall have written procedures identifying how and what to do during medical equipment malfunction, i.e., evaluate patient, call Medical Maintenance, and report incident.

(1) Every ward, clinic, department, careline, and division NCOIC will ensure maximum availability of proper functioning medical equipment and accessory components to meet mission requirements.

(2) Hand receipt holders of medical equipment shall develop standing operating procedures which outline user-level maintenance such as performance testing, accessory replacement, user orientation, and training.

APPENDIX A
MAINTENANCE SUPPORT PROCEDURES

1. EQUIPMENT USER/OPERATOR MAINTENANCE.

The quality of all medical equipment is dependent on Level I maintenance.

a. Users are responsible for:

(1) Accountability of medical equipment on hand receipt, with its MMCN.

(2) Perform daily operational and safety checks on all medical equipment, **before, during and after each and every use**. These checks include cleanliness, proper storage of unit, and completeness of all accessories required for patient care mission.

(3) Verify power pack on all DC powered equipment by operating unit without AC power supply. All pieces of equipment with a battery or battery charger will be plugged if at all possible.

(4) Maintain equipment, all equipment literatures and the property accountability folder, quality inspections, IAW JCAHO and applicable Army requirements.

(5) Maintain user replacement or durable accessories at levels required to support their needs. Information on ordering accessories and supplies can be obtained from the manufacturer's literature or Logistics.

b. Equipment training will emphasize use and care, of medical equipment.

2. SCHEDULED MAINTENANCE

a. All medical equipment will be processed through the Equipment Management Branch (EMB), Medical Maintenance will inventory and perform technical inspection on each unit, to include any loaner or rental equipment. EMB will post required data and specifications for the hand receipt holder and input the scheduled services IAW manufacturer recommendations, pertinent to Army, MEDCOM, JCAHO, and safety regulations.

b. Scheduled Services are:

(1) **Preventative Maintenance, Checks and Services (PMCS)**. PMCS is a systematic action performed to inspect, detect, and prevent an incipient failure(s).

(2) **Electrical Safety Testing (ST)**. Safety tests provide information to the repairer that describes electrical current flow characteristics of the equipment. Deteriorated power cords are the most common cause of failed electrical safety test. The test verifies that the path of least resistance for current flow is to ground through the power cord rather than the human body.

(3) **Calibration/Verification/Certification (CL)**. Calibration/Verification/Certification is the comparison of a medical instrument of unverified accuracy with a test instrument of known and greater accuracy, which is traceable

to National Institute of Standards and Technology. This testing is used to detect and correct any discrepancy in the accuracy of the unverified instrument.

c. Handreceipt holders are notified of up-coming scheduled services by a memorandum. Upon receipt, the handreceipt holder is responsible to contact Medical Maintenance to schedule a time to perform scheduled maintenance.

(1) A completed copy of the performed scheduled service work order listing and noted deficiencies will be provided for the handreceipt holder's signature. Work orders will be submitted for identified deficiencies within 72 hours to medical maintenance by the handreceipt holder.

(2) "Not Located" (NL) equipment is any medical equipment that was/were not located during the scheduled service month. This equipment is identified as delinquent and due maintenance. Equipment may be unsafe for patient care.

(a) A written memorandum will be sent to the handreceipt holder of any **not located** equipment. It is the responsibility of the handreceipt holder to locate the equipment within five calendar days and contact Medical Maintenance. If after five calendar days the handreceipt holder has not located their equipment, they will be contacted by the Property Book Officer to begin a report of survey to regain accountability.

3. UNSCHEDULED MAINTENANCE

a. It is the responsibility of the equipment user to inform Equipment Management Branch when equipment has failed to function. Portable equipment will be delivered to the Equipment Management Branch. A MEDCOM Form 643 (Automated Maintenance Request) will be initiated by the Equipment Management Branch upon receipt of the equipment. Equipment must be cleaned prior to being turned into medical maintenance section. Non-portable equipment will be repaired on-site. The NCOIC or personnel must notify the Equipment Management Branch either telephonically or in person to initiate a work request on MEDCOM Form 643. The Medical Materiel Control Number (MMCN) and location of the equipment must be provided to initiate a maintenance request.

b. The green copy of the MEDCOM Form 643 will serve as the receipt for the equipment and should be kept on file by the hand receipt holder until the equipment is returned to service. For Maintenance Requests submitted telephonically, the green copy will be sent to the section through distribution. If the equipment is turned into the Medical Maintenance Shop, this copy must be returned to Medical Maintenance when equipment is picked up.

4. **SUBMITTING A MAINTENANCE REQUEST.** When submitting a maintenance request, the NCOIC, supervisor, or authorized personnel should provide the following information.

a. Organization: Enter unit, section, activity, ward, and service, etc. (Not EACH)

b. Location: EACH, floor, ward, room, and building number.

c. MMCN: Medical Materiel Control Number, may be found on the white bar code sticker on the equipment or listed on the section's hand receipt. Example of the MMCN is an alpha character followed by four numbers, B2259.

d. Description: A good description of the failure. **This is very important!** The requester should thoroughly check the unit and describe how it is failing to operate properly.

e. Remarks: Provide the duty phone number and point of contact. Note any accessories with the equipment such as manuals, probes, transducers, and leads.

f. The NCOIC or responsible person is responsible in maintaining their "Medical Equipment Maintenance Folders" (MEMF). MEMF's are created to assist the handreceipt holder on the history and disposition of their medical equipment. It is recommended the MEMF is reconciled with Medical Maintenance at least once a month.

5. MAINTENANCE RELATED PROGRAMS.

a. Medical equipment maintenance is provided by the Medical Maintenance Section. Normal hours of operation are 0730 - 1530 Monday through Friday. After normal duty hours, emergency repairs will be obtained by calling the Administrative Officer of the Day (AOD), 526-7001/7002. The AOD has the only authority to contact the emergency on call MER.

b. Contract Maintenance.

(1) The Equipment Management Branch will monitor contract service. Contract service will be used in accordance with the mission requirements of the Medical Maintenance Section, manpower and technical capabilities.

(2) Users of hospital-owned medical equipment will not make service calls directly to vendors for the purpose of establishing or coordinating maintenance services. Personnel other than EMB personnel who initiate or coordinate for any maintenance services without EMB approval may be held financially liable for any services they coordinated. All service calls will be initiated by the Equipment Management Branch with the exception of medical equipment under reagent/rental agreements.

(3) Services may be requested by designated individuals from departments with medical equipment under reagent/rental agreement. This equipment will be placed on the USAMEDDAC Property Book. Periodic services required by the manufacturer will be scheduled on the maintenance data base as if the equipment was Army owned. A copy of each service report provided by the vendors will be provided to Chief, Equipment Management Branch. Department of Army personnel will ensure the service report contains a clear description of the problem, corrective action,

number of hours to perform the service, replacement part description, part number, part price, hourly labor rate, and the name of the visiting service person performing the work. This action is required by College of American Pathologists (CAP), JCAHO, AR 40-61, and TB Med 750-1, in order to develop a complete maintenance history for each item.

(4) When contractual services are performed on-site the equipment users will ensure the integrity of the service performed, and may sign the service report indicating a service was performed to their satisfaction. If services are performed after duty hours, the equipment user will retain a copy of the signed service report and provide EMB with an original the next following work day.

(5) Equipment Management Branch must be provided the service report for payment purposes. All services performed will be captured on the Army Medical Department Property Accounting System (AMEDDPAS) historical data record system. All vendors will sign in at the Customer Service Desk, Logistics Division, upon arrival to the hospital and check in with Medical Maintenance prior to starting services. Upon completion the Contractor/Vendor must provide all service reports to Medical Maintenance.

(6) The Medical Equipment Maintenance Manager will initiate all service contracts required on either an annual or one-time basis. Annual contracts will be identified on the AMEDDPAS Warranty/Contract Report.

c. Warranty Service.

(1) The Medical Equipment Maintenance Manager will ensure that medical equipment warranties are identified on the AMEDDPAS Warranty/Contract Report. A warranty service report file will be established for monitoring service problems.

(2) Equipment users will not make warranty service calls to vendors for on-site service or send equipment to them. The Equipment Management Branch will contact the vendor, make arrangements for service, and inspect service rendered upon completion. This is required to ensure complete maintenance history is developed and to track persistent failures in new equipment.

(3) In-house repairs will not be performed on equipment under warranty without prior approval from the warrantor and the Medical Equipment Maintenance Manager, with the exception of equipment under parts only warranties.

d. Loaner Equipment

(1) Section/Departments are not authorized to contract for or accept loaner equipment. All requests for loaner medical equipment from any source must be submitted on a memorandum to the Chief of Logistics Division, with justification, source, and desired period of the loan.

e. Demonstration Equipment

(1) Sections desiring vendors to demonstrate products will contact Property Management Section prior to the demonstration for approval. Procedures for demonstration are set forth in AR 40-61, Medical Logistics Policies and Procedures. All demonstration equipment will be electrically tested for safety by the Equipment Management Branch and properly tagged.

f. Medical Stand By Equipment Program (MEDSTEP).

(1) MEDSTEP items are selected major components or end items that are used to temporarily replace existing like items in repair. The purpose is to prevent downtime on existing essential equipment. A limited amount of MEDSTEP is maintained in medical maintenance.

(2) The following guidelines will be followed when evaluating eligibility for MEDSTEP additions:

(a) Equipment must be mission essential. When the equipment is not operational, the section's operation ceases.

(b) Equipment must not be under an annual service contract.

(c) In-house MEDSTEP assets will not duplicate those maintained by United States Army Medical Materiel Agency (USAMMA).

(d) MEDSTEP assets will not be used to replace uneconomically repairable items or to fill in for equipment shortages.

6. ALTERATION OF MEDICAL EQUIPMENT. The Medical Equipment Maintenance Manager will ensure that alteration or modification which changes medical equipment function does not occur without proper prior approval (i.e., manufacturer's notice of modification, or as recommended in Department of the Army Supply Bulletins).

Modification will be documented through the use of a modification work order, Modifications will not be implemented until they have been reviewed by the AMEDD National Maintenance Point.

7. MAINTENANCE RELATED PARTS/SUPPLIES.

a. Maintenance-Related Supplies. Two types of maintenance-related supplies are authorized in accordance with DA Pamphlet 710-2-2, Chapter 24, for support level maintenance as follows:

(1) Bench Stock: Bench stock are low cost, consumable non-medical class items (e.g. repair kits, nuts, bolts, screws, shrink tubing, wire, integrated circuit chips, resistors, etc.) used by repair persons, at an unpredictable rate, in the process of repair of medical equipment.

(2) Shop Stock (demand supported stock): Shop stock parts are selected items for stockage based on three demands within 180 days. The EMB OIC approves shop stock requirements. To retain these items as Shop Stock there

must be at one demand every 180 days. These supplies are consumed by the Equipment Management Branch during the course of repair of medical equipment and are not provided as user-replaceable parts.

b. User -Replaceable Parts.

(1) It is the responsibility of every equipment user to maintain consumable supplies as needed to ensure continued use of medical equipment. Consumable supplies include detachable patient cables, light bulbs, probe tips, air filters, electrodes, etc.

(2) User-replaceable supplies with a stock class of 6500, will be ordered by the user through Medical Materiel Branch.

(3) Other user maintenance supply items with non-medical class stock or part numbers, such as light bulbs and alkaline batteries, will be ordered through the Property Management Section.

APPENDIX B
RECEIPT, TURN-IN, AND DISPOSITION OF MEDICAL EQUIPMENT

1. TECHNICAL INSPECTION (TI). Technical inspections of medical equipment involve analysis of equipment with regard to serviceability standards and performance tests.

2. TYPES OF TECHNICAL INSPECTIONS. The following types of TI's will be performed by a Medical Equipment Repairer (MER) in accordance with AR 750-1, TB MED 7, and manufacturer's literature.

a. Acceptance/Pre-issue. This is inspection of newly procured medical equipment prior to acceptance and issue into the health care delivery system.

(1) Property Book Warehouse Personnel will deliver newly received medical equipment to Equipment Management Branch with a request for TI worksheet. The PBO/MEDCASE Manager shall meet the prompt payment requirements, stipulated in AR 37-107, 2-5d, regardless of whether a complete TI has been performed by medical maintenance. However, should discrepancies be noted during the TI process, appropriate action will be taken. Operator/service manuals will be available during the TI on all new equipment.

(2) Equipment Management Branch will TI the equipment to ensure the delivered equipment is complete in accordance with the specifications of the contract, operational, and safe for patient use. Attention to detail shall be given to this process to take advantage of vendor installation and avoid loss of warranty due to unauthorized handling. The complete TI will be performed within five working days of the Medical Maintenance Section's receipt.

(3) Vendor installed equipment will be accounted for by the Medical Material Branch and not issued to Property Book Officer until it has been installed per contract specifications. Payment for said equipment will be in accordance with contract requirements.

(4) Property Book Officer will assign the equipment to the property book and hand receipt it to the requesting department.

(5) No equipment will be delivered directly to the end user. However, if such delivery should occur, the end user/hand receipt holder is required to notify the Property Book Officer (PBO) immediately. The PBO will coordinate the proper receipt and inspection with the Medical Material and Equipment Management Branch Chiefs.

b. Turn in (used equipment). This is inspection of used medical equipment to identify serviceability condition for future use. The TI for serviceability may only be requested by the Property Book Section.

(1) Inspection is to ensure serviceability or reparability of an item removed from service. Functioning equipment turned in to the PBO by a ward or clinic need not be routinely technically inspected for reissue to another activity within the medical treatment facility (MTF).

However, if the PBO determines that a TI is required prior to reissue, the request for coding will be in accordance with TB Med 750-1, paragraph 9-22.

(2) Inspection of used medical equipment to be reported as excess will be in accordance with TB Med 750-1, paragraph 9-60. The PBO will indicate the following on the excess equipment report, HSC Form 643 (Maintenance Request): "Request TI (classification) for Reporting Excess."

3. EXPENDITURE LIMITS FOR MEDICAL EQUIPMENT. Maintenance Expenditure Limits (MEL) and Life Expectancy are two factors required to determine repair eligibility of equipment. When the estimated cost of repair exceeds the applicable MEL, further maintenance is not authorized except when a waiver has been obtained from the hospital Commander. When the equipment's Life Expectancy is reached or exceeded, the MEL is 10 percent of the equipment's acquisition cost.

a. Maintenance Expenditure Limit. The MEL for medical equipment is a percentage of the current acquisition cost based on life expectancy remaining. The maximum MEL will be 65 percent of the current acquisition cost. The MEL for equipment, which has reached or exceeded its life expectancy is 10 percent of the current acquisition cost. The MEL can be found on the Repetitive Maintenance Report and the individual equipment maintenance history located in the Equipment Management Branch.

4. EXCEPTION.

a. For special purpose items, such as dental/surgical handpieces, and x-ray tubes, a MEL of 90 percent of current acquisition cost regardless of the item's age will be used.

b. Basic electrical, mechanical, or electromechanical items, such as patient lamps, sphygmomanometers, basic otoscopes, ophthalmoscopes, stethoscopes and other low cost materiel, is exempt from MEL formal requirements. These items are characterized by frequent replacement because of rapid wear and tear as a result of high use. The MEL for these items will be 80 percent of the current acquisition cost, regardless of age.

c. Hospital furniture (narcotics and/or medicine cabinets, tables, surgical stands, etc.) will have a MEL of 80 percent or current acquisition cost for its entire life.

5. WAIVERS FOR MEDICAL MATERIEL. Published one-time repair or overhaul allowances for medical materiel may be exceeded when the Commander of the MTF determines that an urgent need for the item exists to save life or prevent suffering and distress, and a replacement item will not be available to satisfy the professional requirement (AR 40-61). The Chief, Logistics Division, the Commander's appointed designee, approves/disapproves waivers for items below the MEDCASE threshold.

6. POLICY REGARDING WAIVERS.

a. Existing policy and implementing instructions concerning one-time repairs for equipment that exceeds the MEL are specific. These policies are outlined in AR 40-61 and TB Med 7. Implementing guidance is in a variety of technical bulletins. Policy in this area consistently emphasizes the personal attention of commanders in the management of maintenance operations. Guidance recognizes that the need for a medical item is clinically driven; however, the method used to satisfy that identified is resource driven. When a clinician may be in the best position to determine the need, the clinician is not in the best position to decide how the need will be satisfied.

b. The basic philosophy of the waiver policy is to provide for controls to preclude the routine use of repair funds on equipment that should be replaced rather than repaired.

c. The policy governing repair waivers, as stated in AR 40-61 and TB Med 7, is clear. Granting waivers is a command function, not a clinical function. Equipment users are responsible to ensure replacement equipment is ordered in a timely manner to prevent the use of waivers due to excessive expenditures.

d. The Equipment Management Branch has the responsibility for coding medical equipment and notifying the user (ward, clinic, service, etc.) when the item is unserviceable or uneconomically repairable.

e. Users will be notified by memorandum routed from the Chief of Equipment Management Branch, through the Chief of Logistics, to equipment user. The waiver will identify the shortcoming that prevents repair from being performed.

f. The equipment user must make the determination whether the equipment is required or whether the section can wait for a new one to be purchased.

(1) If the repair is not desired, the user must complete the first endorsement and return the correspondence to Equipment Management Branch.

(2) In the event the repair is needed because the equipment is essential to mission performance, the user must complete the first endorsement, and forward the correspondence to the Commander or Chief, Logistics Division for approval/disapproval. A brief justification is necessary. Reference should be made to the MEDCASE or CEEP case number showing a replacement has been requested.

g. Equipment users will review equipment requirements and schedule the purchase of replacement equipment annually. The use of waivers reflects poor equipment requirements forecasting.

APPENDIX C
Joint Commissioned Accreditation of Healthcare Organizations (JCAHO)

1. RESPONSIBILITIES, MEDDAC Commander is responsible for:

a. Assuring an adequate operator/user maintenance program is established.

b. Providing necessary training for Equipment Management Branch personnel IAW JCAHO PARAc.1.3.6.

c. Ensuring test equipment and repair parts are made available.

2. Chiefs/Carelines/Departments/Divisions/Services/Activities are responsible for:

a. Ensuring that each piece or type of equipment has written equipment operation and user maintenance procedures. (These procedures are usually outlined in the manufacturers literature which each activity is required to maintain on all medical equipment IAW MEDCOM Reg. 750-1) JCAHO para EC.1.3.6 and HR.1 through HR.4 also requires a user training program be established to manage the clinical and physical risks associated with medical equipment.

b. Ensuring that there is orientation and at least annual continuing education of individuals who use and/or maintain the equipment and that required training is documented, IAW JCAHO paragraphs listed in para. a. above.

c. Ensuring Handreceipt holders attend initial and annual logistics training. This training ensures all activities are current on Medical Supply, Property Management, and Medical Maintenance procedures and able to properly train operators in maintaining their assigned equipment.

d. Maintaining an adequate stockage of operator replaceable parts and accessories.

3. Operators are responsible for:

a. Attending orientation and annual continuing education on the operation, care and maintenance of all equipment operated IAW JCAHO para. EC.1.3.6 and HR.1 through HR.4.

b. Ensuring that before, during and after operational tests, cleaning and operators maintenance is performed.

c. Reporting all defective equipment to their Chief/NCOIC for preparation of necessary paperwork and coordination with Equipment Management Branch for repairs.

The proponent of this pamphlet is Equipment Management Branch, Logistics Division (MCXE-LOG-EM). Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms directly to proponent).