

Sample Data Collection Monthly Report January 2003



**Submitted to:
U.S. Army Medical Materiel Agency
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland**



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Report # 012

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Introduction: The U.S. Army Medical Material Agency (USAMMA) serves as the Army Medical Department's (AMEDD) strategic level medical logistics organization. USAMMA's mission is to enhance the medical material readiness throughout the full range of military health service support missions worldwide. In this role USAMMA develops and implements innovative logistics concepts and technologies as well as promoting military and medical logistics information and knowledge.

The agency's core skills and technologies center on conducting life cycle management for commercial and non-developmental items, sustaining and modernizing the medical force, supporting exercises and contingency operations and disseminating medical logistics information and knowledge. Two of USAMMA's critical groups tasked with this mission are the Maintenance Engineering Operations Directorate (MEOD) and the Technology Support Division (TSD). The MEOD is responsible for the maintenance of all the medical equipment while the TSD is responsible for ensuring the medical technology is sustainable and meets current and future utilization requirements.

In order to enhance the strengths of MEOD and TSD, USAMMA has contracted, (contract # DAMD17-01-D-0004), with McAdams Technologies Inc., (subcontracted to Information Systems Support Inc. March 2001), to develop and implement a sample data collection program for targeted medical devices. The overall focus of this program is to assist USAMMA in supplying medical field equipment, and DEPMEDS facilities with current, and sustainable medical technology in a fiscally efficient manner.

Scope: This document, the twelfth Sample Data Collection (SDC) report, includes information gathered for a deployed unit that asked for assistance in finding a properly sized replacement for a malfunctioning fresh frozen plasma freezer as well as a need for a reagent freezer. Also, a letter of obsolescence for a popular bacteriological incubator is included along with a possible replacement item for that incubator. Additionally, some preliminary work was done in choosing a selection of three blankets for the Bair Hugger forced-air patient warmer out of the 15 available from the manufacturer should the Bair Hugger be included in TO&E assemblages. Those selected should fill the majority of the foreseeable needs. Furthermore, information that was uncovered during research accomplished to determine if the airworthiness testing of the Cardiac Science Powerheart AED may be in conflict with the Patient Movement Items (PMI) Zoll Defibrillator with AED option. Other information is also included that compares the current BCI 3303 and the PalmSAT 2500 pulse oximeters to determine if the PalmSAT 2500 is comparable with the BCI unit. There is also information on a refrigerator that was ordered for storing reagents for the iSTAT chemical analyzer. Finally, there is information pertaining to a selection of new Test, Measurement, and Diagnostic Equipment (TMDE) that the MEOD is recommending be supplied to enhance the medical maintenance capabilities of TO&E units.

Technology Support Issues

The following equipment and technology issues were addressed during January.

Fresh Frozen Plasma Freezer issue in Bosnia-Herzegovina

A priority request was received from Task Force Medical Eagle, Bosnia-Herzegovina to find a suitable replacement for an existing fresh frozen plasma freezer. A copy of the request is found at Appendix 1. The unit needed a properly sized freezer along with the ability to store frozen reagents at a different temperature range from frozen plasma, which added to the complexity of the request. The ideal replacement would be one freezer with two separately controlled compartments as one compartment was needed for storing reagents between 0 and -18 degrees Celsius while another compartment was required to store fresh frozen plasma at -18 degrees Celsius or colder.

The problem at Task Force Medical Eagle arose when they ordered a replacement freezer for their unreliable, existing blood bank freezer. The replacement unit sent to them, based on the UA, was a 500 unit, top-loading, chest-type freezer that was too large to be used in the ISO shelter. The ceiling was too low to allow for fully opening the lid and the height of the unit would necessitate a stepping stool of some sort for loading and unloading. The 500-unit capacity was also too large for the actual needs of the medical unit. Upon further investigation, Task Force Medical Eagle personnel said a freezer with a capacity for 75 units of frozen plasma would meet their requirement.

Commercially available dual-compartment freezers with separate temperature controls could not be located. Instead, with the concurrence of the laboratory combat developer, a freezer that was both available and could be set at the required temperature ranges was recommended to the unit. The freezer recommended was NSN 4110-01-450-0060, Freezer, Mechanical, Blood Plasma, Model CTF1-1B-06, manufactured by Revco Technologies. The freezer has a capacity of 75 units of plasma.

Blankets for Bair Hugger Patient Warmer

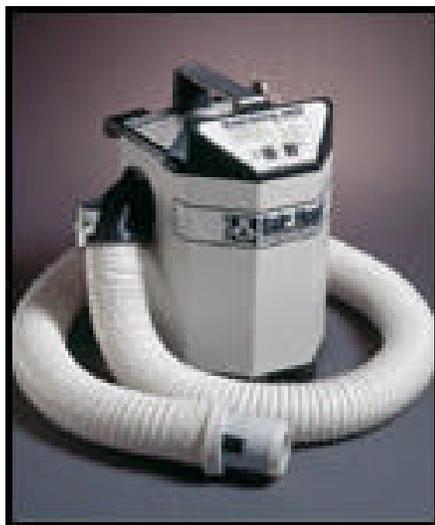


Fig. 1 Bair Hugger Model 505

Augustine Medical, maker of the Bair Hugger patient warmer, has over 15 varieties of blankets that can be used with their unit. Table 1 is a list of all the blankets available and the three in bold, from a clinician's point of view, were selected as the smallest number of options that could fill all the foreseeable needs of the deployed medical team. Although the Bair Hugger has not yet been added to any deployment packages, some units are purchasing them on their own. Several other patient warmers are currently being investigated but in the meantime the Bair Hugger is still finding its way into field use. The cited drawbacks of the Bair Hugger for deployed units are its power requirement and size. At over 1,000 Watts, the Bair Hugger could quickly reach the capacity of the generator authorized for the unit. Also the size and weight were said to be less than ideal. Table 2 includes the specifications.

Table 1. Bair Hugger Blanket Options

| Model Number | Nomenclature | Recommended as a Supply Item (Yes/No) |
|---------------------|---------------------------|--|
| 110 | Outpatient | No |
| 300 | Full Body | No |
| 305 | Chest Access | No |
| 310 | Pediatric | No |
| 315 | Multi-Access | No |
| 522 | Upper Body | No |
| 525 | Lower Body | No |
| 537 | Small Lower Body | No |
| 530 | Pediatric Long | No |
| 536 | Pediatric Short | No |
| 540 | Torso | Yes |
| 555 | Pediatric Full Access | No |
| 560 | Catheterization Lab | No |
| 570 | Surgical Access | Yes |
| 610 | Full Body Surgical | Yes |

Table 2. Specifications for the Model 505 Bair Hugger

| | |
|--------------------------------|---|
| Dimensions | 13''H x 10''W x 11'' D |
| Leakage Current | Meets hospital and regulatory standards |
| Weight | 11.5 pounds (5.2 kg) |
| Filter | High-efficiency 0.2 microns |
| Operating Temperature : | |
| High | 43°C +/- 3°C |
| Medium | 38°C +/- 3°C |
| Low | 32°C +/- 3°C |
| Device Rating : | |
| | 110-12- VAC, 60 Hz, 9.5 Amperes |
| | 100 VAC, 50/60 Hz, 9.5 Amperes |
| | 220-240 VAC, 50 Hz, 4.5 Amperes |

AMSCO (now STERIS) Proof Incubator

During the steam sterilization process, a quality assurance measure is to put a sealed vial with heat-sensitive spores, bacillus stearothermophilus, into each load. Those vials are then cultured in an incubator heated to 55°C to see if they are still viable. If the spores incubate, the entire load is then re-sterilized. A widely-used incubator in the inventory has been the Proof brand of incubator sold by AMSCO (now STERIS Corporation) under part numbers NA127 and NA053. However, these units are obsolete and are no longer being sold or serviced by STERIS Corporation. Appendix 2 is a copy of the letter received from STERIS concerning the incubators. As a replacement, STERIS has a dual-temperature model called Verify. Their

part number is S3080 and it can process as many as 28 vials. The NSN for the Verify Steam and Ethylene Oxide Dual Incubator is 6640-01-446-2597 and is part of the M302 Unit Assemblage. The dual incubator requires two supply items, part number S3060 Sterilization Indicator (6530-01-446-1643) and part number S3075 Sterilization Indicator Activator (6530-01-446-4401). This incubator was designed for use with either steam sterilization or Ethylene Oxide so it has two temperature settings.



Fig. 2. AMSCO Proof Incubator

Comparison of Powerheart AED and Zoll M Series CCT Defibrillator submitted for airworthiness certification for PMI.

The following was researched in regards to a memorandum regarding the certification of UH-60A/L airworthiness for a Cardiac Science Powerheart Automated External Defibrillator (AED) Model 921ORD. A



Fig. 3. Cardiac Science Powerheart AED

question came up in regards to the Joint Requirements Clinical Advisory Board (JRCAB), Patient Movement Items (PMI) group adopting the Zoll AED as the PMI standard and the requester was asking if this was a disconnect. Looking into the issue, there doesn't appear to be any competing issues. The Powerheart only operates as an automated external defibrillator, which is a device used to administer an electric shock through the chest wall to the heart. Built-in computers assess the patient's heart rhythm, judge whether defibrillation is needed, and then administer the shock. Most AEDs are designed for use by nonmedical personnel such as police, firefighters, flight attendants, and other properly trained lay rescuers. The AED only treats a heart in ventricular fibrillation (VF), an irregular heart rhythm. In cardiac arrest without VF, the heart doesn't respond to electric currents but needs medications. The victim also needs breathing support.

In contrast to the Powerheart, the Zoll unit in question is the Series M CCT defibrillator which has an AED option. It is designed for use by properly trained healthcare providers for monitoring patients and, if necessary, applying defibrillation. The AED option of the Zoll defibrillator could be used as a second opinion should an erratic heartbeat indicate defibrillation may be necessary but the unit is capable of much more, including pulse oximetry, EtCO₂, non-invasive blood pressure, and fully interpretive 12-lead ECG. There is no disconnect, both units provide differing capabilities



Fig. 4 Zoll M Series CCT

(AED general information included from American Heart Association Questions and Answers page at http://216.185.112.41/cpr_aed/cpr_aed_menu.htm)

Comparison of BCI 3303 vs PalmSAT 2500 pulse oximeters.



Fig. 5. Nonin PalmSAT 2500

There was a request to determine if the PalmSAT 2500 is interchangeable with the BCI 3303 model pulse oximeters. Considering where they were being used. Even though there were several areas where there were differences, the two served the same purpose and we considered them to be interchangeable. It was believed that the reading storage function of the BCI 3303 and the alarms weren't required. The field use of these units appears to be more of a vital signs check and not a constant monitoring unit that would probably require an alarm.



Fig. 6. BCI 3303

In a comparison of specification (see Table 3), both the PalmSAT 2500 and the BCI 3303 pulse oximeters match up well with each other.

- Even though the upper end of the operating and storage temperatures are LOWER for the PalmSAT 2500, they are the SAME as the Nonin Onyx (9500) which is already found in CSH hospitals.
- The PalmSAT can run on (4) AA batteries or a rechargeable battery (which requires purchase of the optional battery charger) while the BCI 3303 runs on rechargeable batteries only so the charger is part of the system.
- The PalmSAT 2500 has a 45 hour life with the rechargeable battery (100 hours normal operation with AA batteries) or continuous if you operate the pulse oximeter while it's in the recharger. The BCI 3303 battery lasts approximately 24 hours between charges but requires 6 hours to fully charge.
- The PalmSAT 2500 has smaller physical dimensions than the BCI 3303 but, that's a moot point since the BCI 3303 comes in a shipping container that could probably house about five or six other units (lots of foam to fill the space).
- Both the BCI 3303 and the PalmSat 2500 have memory feature but the PalmSAT 2500 would need additional software and the information downloaded to a PC to view patient trends while the BCI 3303 has on-screen recall for up to 99 patients during that 24 hour memory limit.

Table 3. Specifications of BCI 3303 and Nonin PalmSAT 2500

| | BCI 3303 | Nonin PalmSAT 2500 |
|-----------------------------|----------------------------|-------------------------------|
| Pulse Rate | +/- 2% | +/- 3% |
| Pulse Range | 30-254 BPM | 18-300 BPM |
| SPO2 Range | 0 to 100% | 0 to 100% |
| Alarm Range | High and Low Settings | No Alarms |
| Operating Temperature Range | -4 to 131 degrees F | -4 to 122 degrees F |
| Storage Temperature Range | -40 to 167 degrees F | -22 to 122 degrees F |
| Operating Humidity Range | 15-95% RH (non-condensing) | 10-90% RH (non-condensing) |
| Storage Humidity Range | 10-95% RH (non-condensing) | 10-95% RH (non-condensing) |
| Power Requirements | 105-125 VAC, 60 Hz | 120 VAC, 60 Hz |
| | | 207-253 VAC, 50 Hz (optional) |
| | | 90-112 VAC, 50 Hz (optional) |

Recommendation: Taking into account the intended use of the pulse oximeters in a field setting, the slight differences do not preclude the use of the PalmSAT 2500 in place of the BCI 3303. These two units are interchangeable with each other.

Need for a laboratory-grade refrigerator for storing ISTAT reagents.

There was an urgent need to identify a lab refrigerator in which to store reagents for the ISTAT portable clinical analyzer. The temperature range required was between 2 and 8 degrees centigrade. A capacity of approximately 6 cubic feet of storage space was also required. A number of makes and models were explored, including looking at the availability of existing refrigerators with a national stock number already assigned. Several models looked at with an NSN assigned could meet the temperature range but they also came with a freezer box, which would lower the available capacity and also have the potential of freezing the reagent cartridges if the cartridges were stored too close to the freezer portion. The manufacturer of the reagents mentioned freezing would ruin the reagents so it would be imperative to keep the reagents away from freezing temperatures. There was a potential suitable refrigerator that already had an NSN assigned but the manufacturer could not meet the delivery schedule the Army required. The refrigerator ordered was the So-Low Model MV4-6UCR. It has a 6.1 cubic foot capacity with a 1 to 7 degree Celsius range. Dimensions of the refrigerator are 24" Wide x 24" Deep x 34" High. The refrigerators have a GSA price of \$975 each and runs on 115 volts AC at 60 Hertz. The NSN for this unit is 4110-01-234-8154.



Fig 7. Laboratory Refrigerator

Table 4. Characteristics for So-Low Laboratory Refrigerator

| Specifications | Model MV4-6UCR |
|--|---------------------------|
| Capacity | 6.1 Cubic Feet/173 liters |
| Temperature Range | 1 to 7 degrees Celsius |
| Dimensions | 23 7/8" x 24" x 34" |
| Manual Defrost | |
| Forced Air Ventilation Through Front Grille | |
| No Additional Ventilation Clearance Required to Build in Under Counter | |
| R134A Refrigeration System | |
| 3 In-Door Shelves | |
| 115 Volt, 60 Hz, 1 Phase | |
| 3.3 Amps | |

Test, Measurement, and Diagnostic Equipment (TMDE)

The ongoing review of the Army's MTOE medical TMDE-SP requirements included the following items. These items augment the items identified in the December 2002 issue. A consolidated listing of all TMDE requirements and the inventory levels at each type organization will follow in next month issue.

1. The Fluke Biomedical, 215, Medical Function Simulator, NSN 6625012983830, LIN: S56720 is a portable; self-contained, battery operated, ECG, blood pressure, respiration, and temperature simulator, w/protective case; used to test physiological monitoring equipment and trouble shooting when required; operational utilizing a nominal 9 volt standard alkaline battery (not supplied) w/low voltage indicator; cube 0.12 cubic feet, weight 2.00 pounds.



Fig. 8. Fluke Model 215
Medical Function Simulator

2. The Fluke Biomedical, 232M, Current Leakage Tester, NSN 6625011428233, LIN: T61791 is a Tester, current leakage, medical equipment auto ranging type, up ranges at 1999 counts, down ranges at 180 counts, meter with 3-1/2 digit led readout, operates on 115 or 230 volt, 50/60 Hz power, w/ carrying case



Fig. 9. Fluke Model
232M Current Leakage
Tester

3. The Fluke Biomedical, Impulse 4000, Defib/Ekg Analyzer, NSN 6515014491420, LIN: A83433 is a battery-operated analyzer that measures defibrillator energy outputs between 50 to 1000 joules with an accuracy of +/- 2%. It offers a load resistance of 50 ohms; transcutaneous pacing testing; 12-lead ekg simulation; interactive training capabilities; four line display; defibrillator training manikin interface. It, includes TQA-9 PhysioControl transcutaneous pacer, plug in test module and transcutaneous, pacer only, adapters.



Fig. 10. Fluke Impulse
4000 Defib/Ekg Analyzer

4. The Fluke Biomedical, CUFFLINK, NIBP Analyzer, NSN 6515014491423, LIN: Z07763 is a self contained automatic test device capable of testing the blood pressure functions of physiological monitoring equipment. Capable of testing adult, infant, and neonatal waveforms covering the full spectrum of normal, hypertensive, and hypotensive blood pressures and heart rates. It can be used to generate normal, bradycardia, and tachycardia rhythm selections. It can define up to five automated test sequences with a variety of heart rates and repeat cycle parameters. In addition to the above, capabilities can include manometer, leak test, and pop off pressure tests.



Fig. 11. Fluke NIBP Analyzer

5. The Fluke Biomedical, IPT-1, Infusion Pump Tester, NSN 6515014492331, LIN: Z27500 is a single channel infusion pump tester capable of testing a variety of steady flow and non-steady flow infusion devices. It allows measurement of flow rates ranging from .5ml/hr to 1000 ml/hr. It's tests include volume, flow (from 1ml/hr to 1000 ml/hr) and occlusion (500-1780 mm hg). It also has rs-232 and printer ports, and is capable of operating on 110 or 220 VAC, 50/60 Hz.



Fig. 12. Fluke Infusion Pump Tester

6. The Michigan Instruments, Pnevview3600i, Ventilator Tester, NSN 6515014491421, LIN: Z28075 is a portable test lung system designed to test ventilator operation. It is capable of measuring the following ventilator functions: breath rate, inspiratory and expiratory time, i.e. ratio, tidal volume, peak and average inspiratory flow rate, peak pressure - proximal, intra-lung, mean airway pressure and baseline pressure. It is also capable of operating on 110 or 220 VAC, 50/60 Hz., includes pneuview software, lung simulator, and integral carrying case.



Fig. 13. Michigan Instruments Ventilator Tester

7. The Tektronix, THS720P, Digital Oscilloscope, NSN 6625014489577, LIN: Z47763 is an isolated channel, 100 MHz bandwidth, and 500 ms/s digital real-time oscilloscope with true rms digital multimeter. The oscilloscope and meter modes can operate simultaneously and independently on the same or different signals. It is capable of providing electric/power measurements of and verifying correct operation of motors, power supply efficiency, and transformer efficiency. It includes two 10x high-voltage passive probes, user manual, quick reference manual, standard meter lead set, Nicad rechargeable battery pack, AC power adapter, soft carrying case, cable and adapters for RS-232, NIST-traceable certificate of calibration, current probes for scope operation, and current probes for DMM operation.



Fig. 14. Tektronix Digital Oscilloscope

8. The Riken, 1802d, Anesthetic Gas Indicator, NSN 6630014876987, LIN: TBD is a compact, hand-held, portable, optical interferometer. Used for calibrating and testing anesthetic vaporizers; measures anesthetic vapor concentrations for desflurane, halothane, enflurane, isoflurane, sevoflurane, ether, methoxyflurane, trichloroethylene, chloroform, nitrous oxide, cyclopropane, carbon dioxide. Measurement accuracy + 3%. Ambient temperature: 0-40 degrees Celsius. Utilizes hand aspirator bulb gas sampling method. Requires one "D" size dry cell.



Fig. 15. Riken Anesthetic Gas Indicator

9. The Fluke, 51, Thermometer, NSN 6685012927873 is a 50 series II contact thermometer that offers fast response and laboratory accuracy (0.05% + 0.3°C) in a rugged, handheld test tool. It features: large backlit dual display plus minimum, maximum, or average, relative time clock on minimum, maximum, and average and provides a time reference for major events. Electronic offset function allows compensation of thermocouple errors to maximize overall accuracy, measures j, k, t, and e-types of thermocouples, readout in °C, °F, or Kelvin (K), splash and dust resistant case protected by impact absorbing holster, user-friendly front panel is easy to set up and operate, sleep mode increases battery life; typical 1000-hour battery life, battery door allows easy battery replacement without breaking the calibration seal, optional toolpak accessory allows the thermometer to hang from any metal object (with the rare earth magnet) or secure around a pipe (with hook-and-loop straps) for hands-free operation. 3 year warranty



Fig. 16. Fluke Model 51 Digital Thermometer

Appendix A

Appendix A

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REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
HEADQUARTERS, 28TH INFANTRY DIVISION (MECHANIZED)
MULTINATIONAL DIVISION (NORTH)
TUZLA, BOSNIA-HERZEGOVINA
APO AE, 09789



ROLL ON

AFZP-TFE-TFME-LAB

31 December 2002

MEMORANDUM FOR DEPUTY COMMANDER FOR CLINICAL SERVICES

SUBJECT: Equipment Acquisition for Task Force Medical Eagle

1. Task Force Medical Eagle has determined that additional equipment is required to support its medical mission in Bosnia-Herzegovina.
2. Identification and justification of the equipment is as follows:
 - a. **Laboratory Freezer** TFME Laboratory Services requires this item to properly store Vitros 250 slides, reagents, and most importantly Fresh Frozen Plasma. The Vitros 250 Chemistry Analyzer is our primary chemistry analyzer. The reagents and calibrators must be stored between 0 and negative 18 degrees Celsius and the Fresh Frozen Plasma must be stored at negative 18 degrees Celsius or colder. Ideally, we need either a freezer that can provide two different temperature compartments or two smaller freezers that can each provide the necessary temperature. They both must be reasonably space efficient.
 - b. The request for these freezers is urgent due to the fact that our current ultra-low freezer (less than negative 18 degrees) is down again. It has failed us several times, which resulted in irreplaceable FFP. Freezer parts including the compressors and filters have been replaced, including routine regular maintenance. Our backup ultra-low freezer is an emergency temporary back up replacement for the ultra-low freezer. Since we have previously purchased a backup Vitros 250, our 0 to negative 18-degree freezer space is now limited. We now have twice as many supplies and not enough freezer space.
3. Point of contact for this memorandum is SSG Szemkus, Task Force Medical Eagle Laboratory NCOIC, at DSN: 762-0435.

MAJ Southerland
Laboratory OIC

SSG Szemkus
Laboratory NCOIC

Appendix B

Appendix B

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January 22, 2003

To Whom it May Concern,

The Proof® Biological Incubators, part number NA127 & NA053, are obsolete and no longer sold and serviced by STERIS Corporation. The Verify® product line has replaced these incubators. The Verify® Incubator is part number S3080, and is a dual temperature, 28-vial incubator.

Regards,

Thomas F. McCrone – STERIS Corporation

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**Submitted to:
U.S. Army Medical Materiel Agency
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland**



Prepared by:
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Introduction: The U.S. Army Medical Material Agency (USAMMA) serves as the Army Medical Department's (AMEDD) strategic level medical logistics organization. USAMMA's mission is to enhance the medical material readiness throughout the full range of military health service support missions worldwide. In this role USAMMA develops and implements innovative logistics concepts and technologies as well as promoting military and medical logistics information and knowledge.

The agency's core skills and technologies center on conducting life cycle management for commercial and non-developmental items, sustaining and modernizing the medical force, supporting exercises and contingency operations and disseminating medical logistics information and knowledge. Two of USAMMA's critical groups tasked with this mission are the Maintenance Engineering Operations Directorate (MEOD) and the Technology Support Division (TSD). The MEOD is responsible for the maintenance of all the medical equipment while the TSD is responsible for ensuring the medical technology is sustainable and meets current and future utilization requirements.

In order to enhance the strengths of MEOD and TSD, USAMMA has contracted, (contract # DAMD17-01-D-0004), with McAdams Technologies Inc., (subcontracted to Information Systems Support Inc. March 2001), to develop and implement a sample data collection program for targeted medical devices. The overall focus of this program is to assist USAMMA in supplying medical field equipment, and DEPMEDS facilities with current, and sustainable medical technology in a fiscally efficient manner.

Scope: This document, the thirteenth Sample Data Collection (SDC) report, includes information gathered for making Impact Instrumentation's Uni-vent 750 volume ventilator, currently in depot storage, complete and usable should they need to be fielded. Also included in the technology support section is the breakdown of a list of older medical equipment items in medical units of the 44th MEDCOM that have either reached or exceeded their life expectancy. Also included are the results of an in-depth review of Test, Measurement, and Diagnostic Equipment (TMDE) items. The list shows various units responsible for maintaining medical assets, what the current TMDE requirements are and what the proposed level of equipment should be based on the review of the current needs.

Technology Support Issues

The following equipment and technology issues were addressed during February.

IMPACT Instrumentation Uni-vent 750 Portable Critical Care Volume Ventilator 6530-01-327-0686

Should the need for critical care volume ventilators exceed the current supply of ventilators deployed in the field, a decision was made to look into the feasibility of using the Uni-vent Model 750M ventilators currently stored in several depots. The units were assessed to determine what was needed to make a complete and usable system. Table 1 is a listing of all the parts and accessories required. Figure 1 shows a unit set up with air and oxygen hoses connected to the air-oxygen blender (see figure 2) and the reusable patient breathing circuit supplied with each ventilator when purchased new. Current healthcare practices include using single-patient use disposable breathing circuits rather than the reusable patient hoses and would require the purchase of an adapter for each ventilator. Each ventilator would also require a compressed air and oxygen source for operation. Each compressor can be configured to operate two ventilators with the use of a manifold kit. The oxygen source is likely to be compressed oxygen in either H- or D-size cylinders, which would require an oxygen regulator to reduce the pressure of the cylinders to 50 psi at a flow rate of up to 100 liters per minute.



Fig. 1. Impact Uni-vent 750M assembled



Fig. 2. Air-O2 blender (side view)

The depots have a current inventory of 247 ventilators available. Along with the ventilators, there is an adequate supply of air-oxygen blenders for each. Without the blenders, the ventilators could be run directly from a compressed oxygen source but if bottled oxygen is used instead of a central liquid oxygen supply, the oxygen supply could be used up quickly. There are also 153 dental compressor-dehydrators available in depot to supply medical grade compressed air to the ventilators, which is adequate for the number of available ventilators. After assessing what is available through the depots, the following items would need to be procured to make the ventilators complete and usable:

1. 247 Interface Adapters (Enables the 750 to use single-use patient circuits)
2. 125 Circuits, single use (15 per case)
3. 125 Filters (Heat, moisture exchanger)(24 per case)
4. 247 Oxygen Regulators (CGA 540 connection)
5. 247 Yoke adapters (CGA 870 connector with CGA 540 male)

The yoke adapters will allow for the purchase of oxygen pressure regulators that connect to H-size cylinders (CGA 540 connection) but with the added ability to interface with D and E size cylinders (CGA 870 connection). Without knowing what the source of the oxygen will be, two separate regulators, one for CGA 540 and one for CGA 870 connections will need to be purchased if the yokes weren't procured.

Table 1. Required accessories and consumables for Uni-vent 750 ventilators

| Requirement | NSN | Vendor | Part # | Price | Sets |
|---|--------------------------------------|---|-------------|------------------------|---|
| External Dental Compressor (one compressor for every two vents) | 6520-01-398-4613 or 6520-00-139-1246 | Defiance Electronics | PAC 6.7 | \$2850 | Currently in OR, EMT, ICU and Dental Sets. Enough in depot to meet the requirement. |
| Interface Adapter so the 750 can use single-use patient circuits | NA | Impact Instrumentation | 820-0062-00 | \$85.50 | Not in any set, needs to be purchased |
| Blender, Air-Oxygen | 6530-01-319-4044 | Bird | 03804 | \$905 | Only in old EMT and ICU sets (H series). Enough in depot to meet the requirement. |
| Disposable Circuit | 6515-01-470-4215 | Allegiance | 003764 | \$50.37 | Same as 754M (not in FST) |
| Filter, Bacterial/Viral | 6515-01-504-5417 | Allegiance | 003005 | \$76.57 per case of 25 | New item not in any set. Needs to be purchased |
| Repair parts kit manifold to connect ventilator to dental compressor-dehydrator | 6545-01-347-5904 | Unique kits put together by the depot for the 750 ventilators | NA | NA | Hill Depot has 125 manifold kits on hand to meet the requirement. |
| Coupling Assembly, DISS Female Oxygen to DISS Female Oxygen | 4730-01-381-0527 | Mercury Medical | 69-201-78 | \$7.27 | Depots have enough on-hand for the requirement |
| Coupling Assembly, DISS Male Oxygen to DISS Male Oxygen | 4730-01-381-0104 | Mercury Medical | 69-201-75 | \$2.21 | Depots have enough on-hand for the requirement |
| Yoke Adapter (D & E Cylinder yoke with CGA 540 male threads) | 8120-00-550-8484 | The BOC Group | 7800 | \$34.03 | No longer available from the BOC Group. SAP shows 744 on-hand at various locations BUT assigned to MISSION. Mercury Medical still sells them. |
| Regulator, Oxygen CGA 540 Connection | 6680-01-505-1310 | Allied Healthcare | L280-220 | \$187.95 | Needs to be purchased |

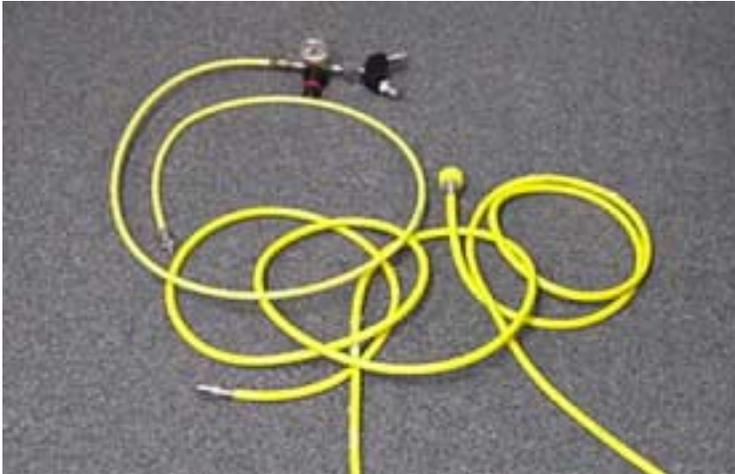


Fig. 3. Manifold kit components

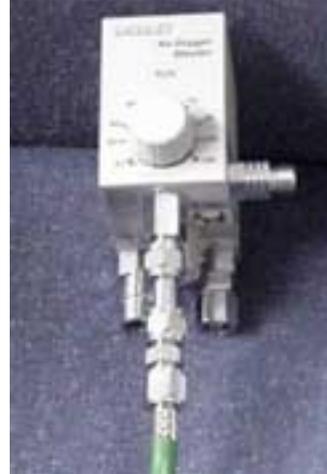


Fig. 4. Air-O2 blender (Front View)

Review of 44th MEDCOM Equipment At or Exceeding Life Expectancy

44th MEDCOM submitted a list of equipment items (56 separate National Stock Numbers) in their inventories that have either reached or exceeded their life expectancy. Life expectancy of equipment is a subjective number assigned to equipment so a review of its effectiveness and adequacy can be accomplished at various stages of use. It doesn't mean the equipment must be replaced when it reaches its life expectancy but this is a good time to see if the equipment is still considered current or obsolete and whether or not its manufacturer still supports it by way of maintenance, parts, or accessories. Also, heavily used equipment may be worn out well before it reaches its expected life. Equipment in field assemblages may not have the same hours of usage as equipment being used in fixed facilities so, if properly maintained, may have a useful life well after its counterpart in hospitals have to be replaced.

Inquiries were made for each item on the equipment list to determine currency. Manufacturers were contacted to check the status of the equipment. The spreadsheet at Appendix B shows the results. The following stock numbers are divided into three sections, items that are still current and available, items that have replacements identified, and items that are obsolete, discontinued, and no replacements are identified:

The following items have been identified as still current and available:

1. 3540-00-457-2706, Sealing Machine
2. 6515-00-323-4510, Cast Cutter
3. 6515-01-379-7852, Cutter Vacuum
4. 6525-01-230-0603, X-ray Illuminator
5. 6525-01-325-3740, Portable X-Ray Apparatus
6. 6530-00-711-3000, Heating Pad Heater
7. 6540-00-299-8108, Edger, Hand Ophthalmic Lens
8. 6650-00-933-3218, Refractometer
9. 6630-01-344-9996, Coagulation Timer
10. 6640-00-145-1180, Laboratory Centrifuge
11. 6640-00-765-0621, Electric Water Bath

The following items were found to have a replacement identified:

1. 4110-01-117-3902, Mechanical Blood Refrigerator, interchangeable with 4110-01-422-6809
2. 4110-01-287-7111, 1 Cubic Foot Capacity Refrigerator, replaced by 4110-01-451-2356
3. 4110-01-291-7046, Refrigerator, replaced by 4110-01-425-8009
4. 6515-01-174-2406, Lifepak 5 Defibrillator, replaced by 6515-01-453-4003
5. 6515-01-242-9123, Suction Apparatus, replaced by 6515-01-435-0050
6. 6515-01-284-8704, Suction Apparatus, replaced by 6515-01-435-4257
7. 6515-01-287-0607, Pneumatic Tourniquet System, replaced by ATS 2000, same NSN 6515-01-287-0607
8. 6515-01-291-1198, EKG Monitor replaced by NSN 6515-01-432-2707
9. 6515-01-291-1199, Defibrillator/Monitor replaced by NSN 6515-01-453-4003
10. 6515-01-293-5577, Pulse Oximeter replaced by NSN 6515-01-452-7697
11. 6515-01-304-6497, Suction Apparatus replaced by NSN 6515-01-435-0050
12. 6515-01-305-1157, Defibrillator/Monitor replaced by NSN 6515-01-453-4003
13. 6515-01-310-1687, Cardiac Pacemaker replaced by NSN 6515-01-491-4633
14. 6515-01-315-6197, Patient Vital Signs Monitor replaced by NSN 6515-01-432-2707
15. 6515-01-345-9440, Defibrillator/Monitor replaced by NSN 6515-01-453-4003
16. 6515-01-418-2346, Patient Vital Signs Monitor replaced by NSN 6515-01-432-2707
17. 6515-01-423-5796, Patient Vital Signs Monitor replaced by NSN 6515-01-432-2711
18. 6515-01-423-5872, Patient Vital Signs Monitor replaced by NSN 6515-01-432-2707
19. 6515-01-423-5877, Patient Vital Signs Monitor replaced by NSN 6515-01-432-2707
20. 6520-00-000-0158, Dental Light Set replaced by NSN 6520-01-446-4170
21. 6520-00-139-1246, M5B Dental Compressor-Dehydrator replaced by PAC 6.7 under same NSN
22. 6520-00-181-7349, Dental Chair and Stool Unit replaced by NSN 6520-01-446-3783
23. 6520-01-272-4531, Dental Operating & Treatment Unit replaced by NSN 6520-01-456-7170
24. 6525-00-420-9588, X-Ray Processor replaced by NSN 6525-01-477-8734
25. 6525-01-099-2320, Dental X-Ray Field Apparatus replaced by NSN 6525-01-425-5216
26. 6530-01-324-4514, Portable Ventilator replaced by NSN 6530-01-455-1653
27. 6545-01-117-3894, Surgical Scrub Sink replaced by Ran-Paige NSN 6530-01-429-6715
28. 6630-01-298-7060, Sodium/Potassium Analyzer-Function replaced by iSTAT NSN 6630-01-411-2405
29. 6630-01-300-8711, Sodium/Potassium Analyzer-Function replaced by iSTAT NSN 6630-01-411-2405
30. 6630-01-344-4058, GemStat Blood Gas Analyzer-Function replaced by iSTAT NSN 6630-01-411-2405

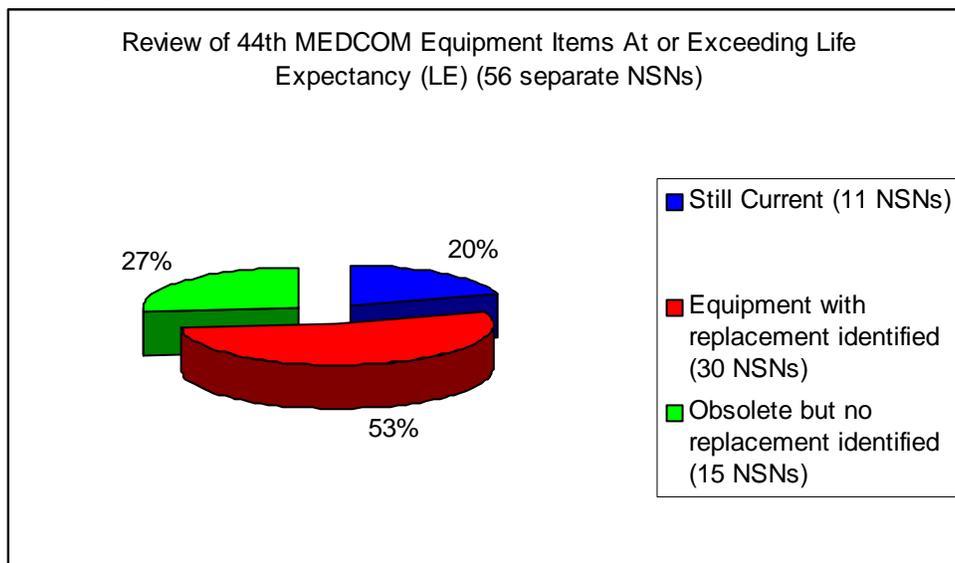
The following items are deleted, obsolete, no longer available and have no replacement identified:

1. 4110-01-320-1699, Mechanical Blood Freezer
2. 4110-01-373-0032, Ice Machine
3. 4430-01-060-9235, Oven
4. 6515-00-782-2625, Suction Pressure Apparatus
5. 6515-01-240-6883, Blood Recovery/Delivery Apparatus
6. 6515-01-259-4307, Suction Drainage Unit
7. 6515-01-290-8949, Head-Mounted Light Source
8. 6515-01-313-6242, Clinical Thermometer
9. 6515-01-378-4529, Ultrasonic Stimulator
10. 6525-00-823-8144, X-Ray Film Processing Machine
11. 6525-01-303-6235, X-Ray Film Processing Machine
12. 6530-00-937-2204, Field Surgical Light

- 13. 6530-01-314-1228, Surgical Irrigator
- 14. 6540-00-299-8134, Lens Measuring Instrument
- 15. 6640-00-930-9034, Laboratory Centrifuge

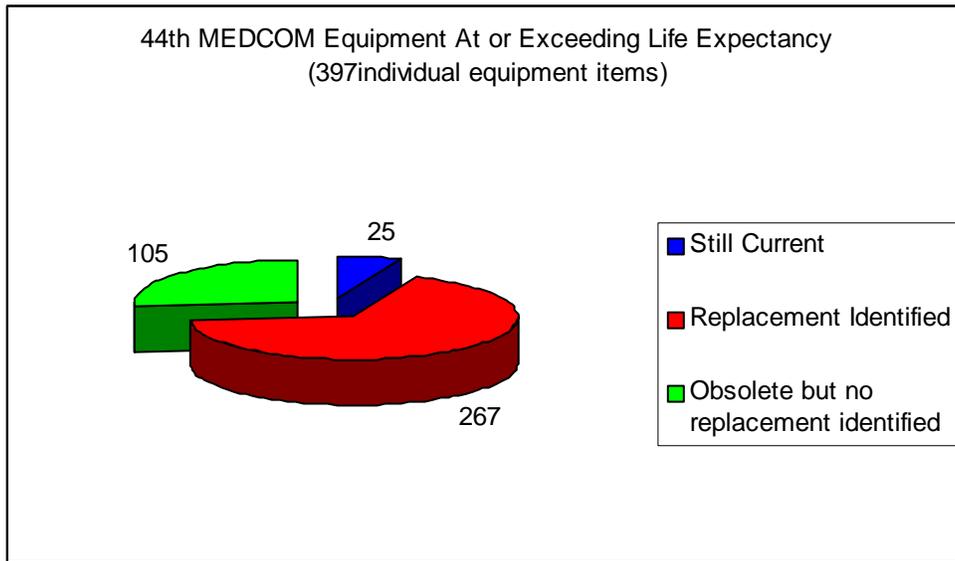
Chart 1 shows the percentage breakdown of the 56 separate national stock numbers (NSNs) where the equipment in inventory was either at or exceeded the Life Expectancy (LE). This was not an evaluation of the actual condition of the equipment but rather was a review of what was currently in their inventory compared with current technology to see if something more modern equipment is available. There was a total of 397 pieces of equipment listed on the inventory (representing 56 NSNs).

Chart 1. Review of 44th MEDCOM Equipment Items At or Exceeding Life Expectancy (LE)



Out of the 379 pieces of equipment either at or exceeding its life expectancy, 25 items were still current and available through their manufacturer, 267 items, although still being used, have replacement equipment identified, and 105 items are obsolete but don't have a replacement identified. Chart 2 shows this breakdown.

Chart 2. 44th MEDCOM Equipment At or Exceeding Life Expectancy



Recommendation: Items identified as obsolete without a replacement need to be further investigated to determine if a replacement is required and suggest possible alternatives. Items that have been identified with a replacement need to be assessed to determine why the old equipment is still in the inventory (were new items not procured or were old items retained instead of being turned in when new equipment arrived).

MEOD Issues

The following maintenance issues were addressed during February.

Test, Measurement, and Diagnostic Equipment (TMDE)

1. A review of medical Tables of Organizations Equipment (TOEs) revealed that there are significant discrepancies concerning the requirements for Test, Measurement, and Diagnostic Equipment (TMDE).

a. There are numerous organizations that require medical equipment repairers (MER) (Military Occupation Specialty (MOS) 91A) that are lacking the TMDE requirements that enable the MER to perform their maintenance mission.

b. There are also numerous items of TMDE still showing a requirement that have been replaced by another item that has been included as a requirement or has been determined to be obsolete or no longer required to service the current state of the art medical equipment.

2. The table in Appendix A depicts the Operational TOE (OTOE) requirements as identified by the United States Army Force Management Support Agency (USAFMSA) Requirements Documentation System (RDS). The OTOE column reflects are the quantities listed by the Department of the Army as required for the unit to employ an effective Unit/Direct Support medical equipment maintenance program. The proposed changes as suggested by the National Maintenance Point (NMP) are reflected in the "props'd" column. The quantities are the quantities that are anticipated to be fed into the Basis of Issue Plan (BOIP) thus updating the Requirements Documentation System.

3. The data gathered from review of the requirements documents, if efficiently used, will enhance the equipment readiness and mission completion capability of medical TOE units. Failure to properly equip our medical equipment maintainers inhibits the MER's and the Unit's ability to perform at an optimal level.

| UNIT SRC | DESCRIPTION | X-Ray Calibration & Verification System | | Calibrator Timer | | Counter, Elect-Dig | | Calibrator Generator ECG | |
|-----------|---------------------------------|---|---------|------------------|---------|--------------------|---------|--------------------------|---------|
| | | C05856 | | C14589 | | C19266 | | C61455 | |
| | | OTOE | props'd | OTOE | props'd | OTOE | props'd | OTOE | props'd |
| 08057L000 | Medical Co (MSB) HVY Div | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08058L100 | Medical Company, FSB, HVY DIV | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08058L200 | Medical Company, FSB, HVY DIV | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08108F300 | Med Co, Brigade Spt Bn | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08158F000 | Med Co, FWD SPT BN (XXI) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08257F000 | MED CO, DIV SPT BN (XXI) | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08267L000 | MED CO, DIV SPT BN ABN (XXI) | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08268L000 | MED CO FSB, ABN | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08277L000 | MEDICAL CO, MSB, AASLT DIV | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08278L000 | Medical Company, FSB, AASLT DIV | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08297L000 | MED CO, MSB, LID | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08298L000 | MED CO, FSB, LID | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08437L000 | MED CO, HVY SEP BDE (HSB) | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08438L000 | MED CO, SEP INF BDE (SIB) | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08438L100 | MED CO, SEP INF BDE (SIB) | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08456A000 | HHD, AREA SUPPORT MED BN | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08456L000 | HQS & SPT CO (ASB) | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08473A000 | DENTAL COMPANY (AREA SPT) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08476L000 | HHD, MED BN (DEN SVC) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08477L000 | MED CO, SPT SQDN, ACR | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08478L000 | MED CO, DENTAL SVCS | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08485L000 | MEDICAL BN, LOGISTIC(FWD) | 4 | 6 | 5 | 0 | 4 | 0 | 4 | 0 |
| 08487L000 | LOG SPT CO, MED BN, LOG (FWD) | 4 | 3 | 3 | 0 | 2 | 0 | 2 | 0 |
| 08488L000 | DISTRIBUTION COMPANY | 0 | 3 | 2 | 0 | 2 | 0 | 2 | 0 |
| 08488A000 | MEDICAL LOGISTICS COMPANY | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08489L000 | MED TROOP, SPT SQDN, ACR | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08496A000 | HHD, MEDICAL LOGISTICS BN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08497A000 | LOGISTICS SUPPORT COMPANY | 2 | 4 | 3 | 0 | 2 | 0 | 2 | 0 |
| 08527AA00 | HOSP AUG TM, HEAD & NECK | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08657L000 | THEATER ARMY MEDICAL LAB | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08695L000 | MEDLOG BN (REAR) | 4 | 7 | 8 | 0 | 6 | 0 | 6 | 0 |
| 08697L000 | LOG SPT CO, MED BN, LOG (REAR) | 4 | 4 | 6 | 0 | 4 | 0 | 4 | 0 |
| 08698L000 | DISTRIBUTION CO, LOG (REAR) | 0 | 3 | 2 | 0 | 2 | 0 | 2 | 0 |
| 08705L000 | COMBAT SUPPORT HOSPITAL | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| 08715L000 | FIELD HOSPITAL | 3 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 08725L000 | GENERAL HOSPITAL | 3 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| 08858A000 | HOSP CO, 84 BED, NSB | 3 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 08863L000 | MOBILE ARMY SURGICAL HOSP | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 08955A000 | COMBAT SUPPORT HOSPITAL CORPS | 2 | 2 | 2 | 0 | 2 | 0 | 2 | 0 |
| 08957A000 | HOSP CO, 164 BED, CORPS | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 08958A000 | HOSP CO, 84 BED, CORPS | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 31706L000 | HQ & MAIN SPT CO, SOSB (ABN) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 63906L000 | HQ & MAIN SPT CO, SOSB (ABN) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 63907L000 | FORWARD SPT CO (ABN) SETAF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| UNIT SRC | DESCRIPTION | Calibrator Analyzer | | Cassette XRay Calibration Test | | Densitometer 9V Battery Portable | | Meter Foot Candle | |
|-----------|---------------------------------|---------------------|---------|--------------------------------|---------|----------------------------------|---------|-------------------|---------|
| | | C61523 | | C74198 | | D94348 | | M38443 | |
| | | OTOE | props'd | OTOE | props'd | OTOE | props'd | OTOE | props'd |
| 08057L000 | Medical Co (MSB) HVY Div | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08058L100 | Medical Company, FSB, HVY DIV | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08058L200 | Medical Company, FSB, HVY DIV | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08108F300 | Med Co, Brigade Spt Bn | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08158F000 | Med Co, FWD SPT BN (XXI) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08257F000 | MED CO, DIV SPT BN (XXI) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08267L000 | MED CO, DIV SPT BN ABN (XXI) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08268L000 | MED CO FSB, ABN | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08277L000 | MEDICAL CO, MSB, AASLT DIV | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08278L000 | Medical Company, FSB, AASLT DIV | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08297L000 | MED CO, MSB, LID | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08298L000 | MED CO, FSB, LID | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08437L000 | MED CO, HVY SEP BDE (HSB) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08438L000 | MED CO, SEP INF BDE (SIB) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08438L100 | MED CO, SEP INF BDE (SIB) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08456A000 | HHD, AREA SUPPORT MED BN | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08456L000 | HQS & SPT CO (ASB) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08473A000 | DENTAL COMPANY (AREA SPT) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08476L000 | HHD, MED BN (DEN SVC) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08477L000 | MED CO, SPT SQDN, ACR | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08478L000 | MED CO, DENTAL SVCS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08485L000 | MEDICAL BN, LOGISTIC(FWD) | 6 | 6 | 6 | 0 | 5 | 0 | 5 | 0 |
| 08487L000 | LOG SPT CO, MED BN, LOG (FWD) | 4 | 3 | 4 | 0 | 3 | 0 | 3 | 0 |
| 08488L000 | DISTRIBUTION COMPANY | 2 | 3 | 2 | 0 | 2 | 0 | 2 | 0 |
| 08488A000 | MEDICAL LOGISTICS COMPANY | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08489L000 | MED TROOP, SPT SQDN, ACR | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08496A000 | HHD, MEDICAL LOGISTICS BN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08497A000 | LOGISTICS SUPPORT COMPANY | 4 | 4 | 4 | 0 | 3 | 0 | 3 | 0 |
| 08527AA00 | HOSP AUG TM, HEAD & NECK | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08657L000 | THEATER ARMY MEDICAL LAB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08695L000 | MEDLOG BN (REAR) | 10 | 7 | 0 | 0 | 8 | 0 | 0 | 0 |
| 08697L000 | LOG SPT CO, MED BN, LOG (REAR) | 8 | 4 | 0 | 0 | 6 | 0 | 0 | 0 |
| 08698L000 | DISTRIBUTION CO, LOG (REAR) | 2 | 3 | 0 | 0 | 2 | 0 | 0 | 0 |
| 08705L000 | COMBAT SUPPORT HOSPITAL | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 08715L000 | FIELD HOSPITAL | 3 | 1 | 1 | 0 | 1 | 0 | 3 | 0 |
| 08725L000 | GENERAL HOSPITAL | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 08858A000 | HOSP CO, 84 BED, NSB | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 08863L000 | MOBILE ARMY SURGICAL HOSP | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 08955A000 | COMBAT SUPPORT HOSPITAL CORPS | 2 | 2 | 2 | 0 | 2 | 0 | 2 | 0 |
| 08957A000 | HOSP CO, 164 BED, CORPS | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 08958A000 | HOSP CO, 84 BED, CORPS | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 31706L000 | HQ & MAIN SPT CO, SOSB (ABN) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 63906L000 | HQ & MAIN SPT CO, SOSB (ABN) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 63907L000 | FORWARD SPT CO (ABN) SETAF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| UNIT SRC | DESCRIPTION | Multimeter | | DMM, Hand Held | | Radiometer Ultrasound Therapy | | Signal Generator | |
|-----------|---------------------------------|------------|---------|----------------|---------|-------------------------------------|---------|------------------|---------|
| | | M23954 | | M60449 | | R95994 | | S48323 | |
| | | OTOE | props'd | OTOE | props'd | OTOE | props'd | OTOE | props'd |
| 08057L000 | Medical Co (MSB) HVY Div | 1 | 1 | 4 | 1 | 0 | 0 | 0 | 0 |
| 08058L100 | Medical Company, FSB, HVY DIV | 1 | 1 | 3 | 1 | 0 | 0 | 0 | 0 |
| 08058L200 | Medical Company, FSB, HVY DIV | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 0 |
| 08108F300 | Med Co, Brigade Spt Bn | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 08158F000 | Med Co, FWD SPT BN (XXI) | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 08257F000 | MED CO, DIV SPT BN (XXI) | 1 | 1 | 2 | 2 | 0 | 0 | 0 | 0 |
| 08267L000 | MED CO, DIV SPT BN ABN (XXI) | 1 | 1 | 4 | 1 | 0 | 0 | 0 | 0 |
| 08268L000 | MED CO FSB, ABN | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 08277L000 | MEDICAL CO, MSB, AASLT DIV | 1 | 1 | 5 | 1 | 0 | 0 | 0 | 0 |
| 08278L000 | Medical Company, FSB, AASLT DIV | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 08297L000 | MED CO, MSB, LID | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 08298L000 | MED CO, FSB, LID | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 08437L000 | MED CO, HVY SEP BDE (HSB) | 1 | 1 | 7 | 1 | 0 | 0 | 0 | 0 |
| 08438L000 | MED CO, SEP INF BDE (SIB) | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 08438L100 | MED CO, SEP INF BDE (SIB) | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 08456A000 | HHD, AREA SUPPORT MED BN | 0 | 1 | 4 | 2 | 0 | 0 | 0 | 0 |
| 08456L000 | HQS & SPT CO (ASB) | 2 | 2 | 3 | 1 | 0 | 0 | 0 | 0 |
| 08473A000 | DENTAL COMPANY (AREA SPT) | 1 | 1 | 4 | 1 | 0 | 0 | 0 | 0 |
| 08476L000 | HHD, MED BN (DEN SVC) | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 08477L000 | MED CO, SPT SQDN, ACR | 1 | 1 | 3 | 1 | 0 | 0 | 0 | 0 |
| 08478L000 | MED CO, DENTAL SVCS | 1 | 1 | 1 | 2 | 0 | 0 | 0 | 0 |
| 08485L000 | MEDICAL BN, LOGISTIC(FWD) | 9 | 9 | 34 | 33 | 4 | 4 | 5 | 0 |
| 08487L000 | LOG SPT CO, MED BN, LOG (FWD) | 5 | 5 | 14 | 13 | 2 | 2 | 3 | 0 |
| 08488L000 | DISTRIBUTION COMPANY | 4 | 4 | 20 | 20 | 2 | 2 | 2 | 0 |
| 08488A000 | MEDICAL LOGISTICS COMPANY | 4 | 4 | 27 | 22 | 1 | 2 | 0 | 0 |
| 08489L000 | MED TROOP, SPT SQDN, ACR | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 0 |
| 08496A000 | HHD, MEDICAL LOGISTICS BN | 0 | 0 | 4 | | 0 | 0 | 0 | 0 |
| 08497A000 | LOGISTICS SUPPORT COMPANY | 0 | 0 | 33 | 34 | 2 | 2 | 0 | 0 |
| 08527AA00 | HOSP AUG TM, HEAD & NECK | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 08657L000 | THEATER ARMY MEDICAL LAB | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 |
| 08695L000 | MEDLOG BN (REAR) | 14 | 0 | 37 | 42 | 6 | 4 | 4 | 0 |
| 08697L000 | LOG SPT CO, MED BN, LOG (REAR) | 6 | 6 | 19 | 20 | 4 | 2 | 2 | 0 |
| 08698L000 | DISTRIBUTION CO, LOG (REAR) | 8 | 6 | 18 | 18 | 2 | 2 | 2 | 0 |
| 08705L000 | COMBAT SUPPORT HOSPITAL | 2 | 2 | 6 | 6 | 0 | 1 | 1 | 0 |
| 08715L000 | FIELD HOSPITAL | 2 | 1 | 6 | 3 | 0 | 1 | 1 | 0 |
| 08725L000 | GENERAL HOSPITAL | 2 | 2 | 4 | 5 | 1 | 1 | 1 | 0 |
| 08858A000 | HOSP CO, 84 BED, NSB | 2 | 2 | 6 | 4 | 0 | 0 | 1 | 0 |
| 08863L000 | MOBILE ARMY SURGICAL HOSP | 1 | 1 | 3 | 1 | 0 | 0 | 1 | 0 |
| 08955A000 | COMBAT SUPPORT HOSPITAL CORPS | 4 | 0 | 4 | 5 | 0 | 1 | 1 | 0 |
| 08957A000 | HOSP CO, 164 BED, CORPS | 2 | 1 | 2 | 3 | 0 | 1 | 0 | 0 |
| 08958A000 | HOSP CO, 84 BED, CORPS | 2 | 1 | 2 | 2 | 0 | 0 | 1 | 0 |
| 31706L000 | HQ & MAIN SPT CO, SOSB (ABN) | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 63906L000 | HQ & MAIN SPT CO, SOSB (ABN) | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 63907L000 | FORWARD SPT CO (ABN) SETAF | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |

| UNIT SRC | DESCRIPTION | Simulator Medical Functions | | Tester Defibrillator Energy | |
|-----------|---------------------------------|-----------------------------|---------|-----------------------------|---------|
| | | S56720 | | T02889 | |
| | | OTOE | props'd | OTOE | props'd |
| 08057L000 | Medical Co (MSB) HVY Div | 1 | 1 | 1 | 0 |
| 08058L100 | Medical Company, FSB, HVY DIV | 1 | 1 | 1 | 0 |
| 08058L200 | Medical Company, FSB, HVY DIV | 1 | 1 | 1 | 0 |
| 08108F300 | Med Co, Brigade Spt Bn | 0 | 1 | 0 | 0 |
| 08158F000 | Med Co, FWD SPT BN (XXI) | 0 | 1 | 0 | 0 |
| 08257F000 | MED CO, DIV SPT BN (XXI) | 1 | 1 | 1 | 0 |
| 08267L000 | MED CO, DIV SPT BN ABN (XXI) | 1 | 1 | 1 | 0 |
| 08268L000 | MED CO FSB, ABN | 0 | 1 | 0 | 0 |
| 08277L000 | MEDICAL CO, MSB, AASLT DIV | 1 | 1 | 1 | 0 |
| 08278L000 | Medical Company, FSB, AASLT DIV | 0 | 1 | 0 | 0 |
| 08297L000 | MED CO, MSB, LID | 1 | 1 | 1 | 0 |
| 08298L000 | MED CO, FSB, LID | 1 | 1 | 1 | 0 |
| 08437L000 | MED CO, HVY SEP BDE (HSB) | 1 | 1 | 1 | 0 |
| 08438L000 | MED CO, SEP INF BDE (SIB) | 1 | 1 | 1 | 0 |
| 08438L100 | MED CO, SEP INF BDE (SIB) | 1 | 1 | 1 | 0 |
| 08456A000 | HHD, AREA SUPPORT MED BN | 0 | 1 | 0 | 0 |
| 08456L000 | HQS & SPT CO (ASB) | 1 | 1 | 1 | 0 |
| 08473A000 | DENTAL COMPANY (AREA SPT) | 0 | 0 | 0 | 0 |
| 08476L000 | HHD, MED BN (DEN SVC) | 0 | 0 | 0 | 0 |
| 08477L000 | MED CO, SPT SQDN, ACR | 1 | 1 | 1 | 0 |
| 08478L000 | MED CO, DENTAL SVCS | 0 | 0 | 0 | 0 |
| 08485L000 | MEDICAL BN, LOGISTIC(FWD) | 6 | 6 | 4 | 0 |
| 08487L000 | LOG SPT CO, MED BN, LOG (FWD) | 4 | 3 | 2 | 0 |
| 08488L000 | DISTRIBUTION COMPANY | 2 | 3 | 2 | 0 |
| 08488A000 | MEDICAL LOGISTICS COMPANY | 2 | 4 | 0 | 0 |
| 08489L000 | MED TROOP, SPT SQDN, ACR | 1 | 1 | 1 | 0 |
| 08496A000 | HHD, MEDICAL LOGISTICS BN | 0 | 0 | 0 | 0 |
| 08497A000 | LOGISTICS SUPPORT COMPANY | 4 | 4 | 2 | 0 |
| 08527AA00 | HOSP AUG TM, HEAD & NECK | 0 | 0 | 0 | 0 |
| 08657L000 | THEATER ARMY MEDICAL LAB | 0 | 0 | 0 | 0 |
| 08695L000 | MEDLOG BN (REAR) | 10 | 7 | 6 | 0 |
| 08697L000 | LOG SPT CO, MED BN, LOG (REAR) | 8 | 4 | 4 | 0 |
| 08698L000 | DISTRIBUTION CO, LOG (REAR) | 2 | 3 | 2 | 0 |
| 08705L000 | COMBAT SUPPORT HOSPITAL | 1 | 1 | 0 | 0 |
| 08715L000 | FIELD HOSPITAL | 3 | 1 | 1 | 0 |
| 08725L000 | GENERAL HOSPITAL | 1 | 1 | 0 | 0 |
| 08858A000 | HOSP CO, 84 BED, NSB | 1 | 1 | 1 | 0 |
| 08863L000 | MOBILE ARMY SURGICAL HOSP | 1 | 1 | 1 | 0 |
| 08955A000 | COMBAT SUPPORT HOSPITAL CORPS | 2 | 2 | 2 | 0 |
| 08957A000 | HOSP CO, 164 BED, CORPS | 1 | 1 | 1 | 0 |
| 08958A000 | HOSP CO, 84 BED, CORPS | 1 | 1 | 1 | 0 |
| 31706L000 | HQ & MAIN SPT CO, SOSB (ABN) | 0 | 0 | 0 | 0 |
| 63906L000 | HQ & MAIN SPT CO, SOSB (ABN) | 0 | 0 | 0 | 0 |
| 63907L000 | FORWARD SPT CO (ABN) SETAF | 0 | 0 | 0 | 0 |

| UNIT SRC | DESCRIPTION | Tachom Strob Centrifu | | Tester curnt Leakage | | Test Set Electronic | | Test Set Electrosurg Apparatus | |
|-----------|---------------------------------|--------------------------|---------|-------------------------|---------|---------------------|---------|--------------------------------------|---------|
| | | T07421 | | T61791 | | T77263 | | T90883 | |
| | | OTOE | props'd | OTOE | props'd | OTOE | props'd | OTOE | props'd |
| 08057L000 | Medical Co (MSB) HVY Div | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 08058L100 | Medical Company, FSB, HVY DIV | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 08058L200 | Medical Company, FSB, HVY DIV | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 08108F300 | Med Co, Brigade Spt Bn | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08158F000 | Med Co, FWD SPT BN (XXI) | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08257F000 | MED CO, DIV SPT BN (XXI) | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 08267L000 | MED CO, DIV SPT BN ABN (XXI) | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 08268L000 | MED CO FSB, ABN | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08277L000 | MEDICAL CO, MSB, AASLT DIV | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 08278L000 | Medical Company, FSB, AASLT DIV | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08297L000 | MED CO, MSB, LID | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 08298L000 | MED CO, FSB, LID | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 08437L000 | MED CO, HVY SEP BDE (HSB) | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 08438L000 | MED CO, SEP INF BDE (SIB) | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 08438L100 | MED CO, SEP INF BDE (SIB) | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 08456A000 | HHD, AREA SUPPORT MED BN | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08456L000 | HQS & SPT CO (ASB) | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 08473A000 | DENTAL COMPANY (AREA SPT) | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| 08476L000 | HHD, MED BN (DEN SVC) | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| 08477L000 | MED CO, SPT SQDN, ACR | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 08478L000 | MED CO, DENTAL SVCS | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| 08485L000 | MEDICAL BN, LOGISTIC(FWD) | 3 | 6 | 7 | 6 | 4 | 0 | 5 | 6 |
| 08487L000 | LOG SPT CO, MED BN, LOG (FWD) | 1 | 3 | 5 | 3 | 2 | 0 | 3 | 3 |
| 08488L000 | DISTRIBUTION COMPANY | 2 | 3 | 2 | 3 | 2 | 0 | 2 | 3 |
| 08488A000 | MEDICAL LOGISTICS COMPANY | 1 | 4 | 2 | 4 | 0 | 0 | 1 | 4 |
| 08489L000 | MED TROOP, SPT SQDN, ACR | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 08496A000 | HHD, MEDICAL LOGISTICS BN | 0 | | 0 | | 0 | 0 | 0 | |
| 08497A000 | LOGISTICS SUPPORT COMPANY | 1 | 4 | 5 | 4 | 2 | 0 | 3 | 4 |
| 08527AA00 | HOSP AUG TM, HEAD & NECK | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 08657L000 | THEATER ARMY MEDICAL LAB | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 08695L000 | MEDLOG BN (REAR) | 4 | 7 | 6 | 4 | 6 | 0 | 8 | 7 |
| 08697L000 | LOG SPT CO, MED BN, LOG (REAR) | 2 | 4 | 4 | 4 | 4 | 0 | 6 | 4 |
| 08698L000 | DISTRIBUTION CO, LOG (REAR) | 2 | 3 | 2 | 4 | 2 | 0 | 2 | 3 |
| 08705L000 | COMBAT SUPPORT HOSPITAL | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 08715L000 | FIELD HOSPITAL | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 08725L000 | GENERAL HOSPITAL | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 08858A000 | HOSP CO, 84 BED, NSB | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 08863L000 | MOBILE ARMY SURGICAL HOSP | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 08955A000 | COMBAT SUPPORT HOSPITAL CORPS | 2 | 2 | 2 | 2 | 2 | 0 | 2 | 2 |
| 08957A000 | HOSP CO, 164 BED, CORPS | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 08958A000 | HOSP CO, 84 BED, CORPS | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 31706L000 | HQ & MAIN SPT CO, SOSB (ABN) | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 63906L000 | HQ & MAIN SPT CO, SOSB (ABN) | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 63907L000 | FORWARD SPT CO (ABN) SETAF | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |

| UNIT SRC | DESCRIPTION | Scope | | Defib Analyzer | | IV Pump Analyzer | | NIBP Analyzer | |
|-----------|---------------------------------|--------|---------|----------------|---------|------------------|---------|---------------|---------|
| | | Z47763 | | A83433 | | Z27500 | | Z07763 | |
| | | OTOE | props'd | OTOE | props'd | OTOE | props'd | OTOE | props'd |
| 08057L000 | Medical Co (MSB) HVY Div | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08058L100 | Medical Company, FSB, HVY DIV | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08058L200 | Medical Company, FSB, HVY DIV | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08108F300 | Med Co, Brigade Spt Bn | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08158F000 | Med Co, FWD SPT BN (XXI) | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08257F000 | MED CO, DIV SPT BN (XXI) | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08267L000 | MED CO, DIV SPT BN ABN (XXI) | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08268L000 | MED CO FSB, ABN | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08277L000 | MEDICAL CO, MSB, AASLT DIV | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 08278L000 | Medical Company, FSB, AASLT DIV | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08297L000 | MED CO, MSB, LID | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08298L000 | MED CO, FSB, LID | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08437L000 | MED CO, HVY SEP BDE (HSB) | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08438L000 | MED CO, SEP INF BDE (SIB) | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08438L100 | MED CO, SEP INF BDE (SIB) | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08456A000 | HHD, AREA SUPPORT MED BN | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08456L000 | HQS & SPT CO (ASB) | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08473A000 | DENTAL COMPANY (AREA SPT) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08476L000 | HHD, MED BN (DEN SVC) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08477L000 | MED CO, SPT SQDN, ACR | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08478L000 | MED CO, DENTAL SVCS | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08485L000 | MEDICAL BN, LOGISTIC(FWD) | 0 | 12 | 0 | 6 | 0 | 6 | 0 | 6 |
| 08487L000 | LOG SPT CO, MED BN, LOG (FWD) | 0 | 5 | 0 | 3 | 0 | 3 | 0 | 3 |
| 08488L000 | DISTRIBUTION COMPANY | 0 | 7 | 0 | 3 | 0 | 3 | 0 | 3 |
| 08488A000 | MEDICAL LOGISTICS COMPANY | 0 | 7 | 0 | 4 | 0 | 4 | 0 | 4 |
| 08489L000 | MED TROOP, SPT SQDN, ACR | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08496A000 | HHD, MEDICAL LOGISTICS BN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08497A000 | LOGISTICS SUPPORT COMPANY | 0 | 11 | 0 | 4 | 0 | 4 | 0 | 4 |
| 08527AA00 | HOSP AUG TM, HEAD & NECK | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08657L000 | THEATER ARMY MEDICAL LAB | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08695L000 | MEDLOG BN (REAR) | 0 | 13 | 0 | 7 | 0 | 7 | 0 | 7 |
| 08697L000 | LOG SPT CO, MED BN, LOG (REAR) | 0 | 7 | 0 | 4 | 0 | 4 | 0 | 4 |
| 08698L000 | DISTRIBUTION CO, LOG (REAR) | 0 | 6 | 0 | 3 | 0 | 3 | 0 | 3 |
| 08705L000 | COMBAT SUPPORT HOSPITAL | 0 | 2 | 1 | 1 | 0 | 1 | 0 | 1 |
| 08715L000 | FIELD HOSPITAL | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 08725L000 | GENERAL HOSPITAL | 0 | 2 | 1 | 1 | 0 | 1 | 0 | 2 |
| 08858A000 | HOSP CO, 84 BED, NSB | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 08863L000 | MOBILE ARMY SURGICAL HOSP | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 08955A000 | COMBAT SUPPORT HOSPITAL CORPS | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 |
| 08957A000 | HOSP CO, 164 BED, CORPS | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 08958A000 | HOSP CO, 84 BED, CORPS | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 31706L000 | HQ & MAIN SPT CO, SOSB (ABN) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 63906L000 | HQ & MAIN SPT CO, SOSB (ABN) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 63907L000 | FORWARD SPT CO (ABN) SETAF | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| UNIT SRC | DESCRIPTION | SPO2 Simulator | | Test Lung | | Analyzer, Gas Anesthetic | |
|-----------|---------------------------------|----------------|---------|-----------|---------|--------------------------|---------|
| | | Z14528 | | Z28075 | | TBD | |
| | | OTOE | props'd | OTOE | props'd | OTOE | props'd |
| 08057L000 | Medical Co (MSB) HVY Div | 0 | 1 | 0 | 1 | 0 | 0 |
| 08058L100 | Medical Company, FSB, HVY DIV | 0 | 1 | 0 | 1 | 0 | 0 |
| 08058L200 | Medical Company, FSB, HVY DIV | 0 | 1 | 0 | 1 | 0 | 0 |
| 08108F300 | Med Co, Brigade Spt Bn | 0 | 1 | 0 | 1 | 0 | 0 |
| 08158F000 | Med Co, FWD SPT BN (XXI) | 0 | 1 | 0 | 1 | 0 | 0 |
| 08257F000 | MED CO, DIV SPT BN (XXI) | 0 | 1 | 0 | 1 | 0 | 0 |
| 08267L000 | MED CO, DIV SPT BN ABN (XXI) | 0 | 1 | 0 | 1 | 0 | 0 |
| 08268L000 | MED CO FSB, ABN | 0 | 1 | 0 | 1 | 0 | 0 |
| 08277L000 | MEDICAL CO, MSB, AASLT DIV | 0 | 1 | 0 | 1 | 0 | 0 |
| 08278L000 | Medical Company, FSB, AASLT DIV | 0 | 1 | 0 | 1 | 0 | 0 |
| 08297L000 | MED CO, MSB, LID | 0 | 1 | 0 | 1 | 0 | 0 |
| 08298L000 | MED CO, FSB, LID | 0 | 1 | 0 | 1 | 0 | 0 |
| 08437L000 | MED CO, HVY SEP BDE (HSB) | 0 | 1 | 0 | 1 | 0 | 0 |
| 08438L000 | MED CO, SEP INF BDE (SIB) | 0 | 1 | 0 | 1 | 0 | 0 |
| 08438L100 | MED CO, SEP INF BDE (SIB) | 0 | 1 | 0 | 1 | 0 | 0 |
| 08456A000 | HHD, AREA SUPPORT MED BN | 0 | 1 | 0 | 1 | 0 | 0 |
| 08456L000 | HQS & SPT CO (ASB) | 0 | 1 | 0 | 1 | 0 | 0 |
| 08473A000 | DENTAL COMPANY (AREA SPT) | 0 | 0 | 0 | 0 | 0 | 0 |
| 08476L000 | HHD, MED BN (DEN SVC) | 0 | 0 | 0 | 0 | 0 | 0 |
| 08477L000 | MED CO, SPT SQDN, ACR | 0 | 1 | 0 | 1 | 0 | 0 |
| 08478L000 | MED CO, DENTAL SVCS | 0 | 0 | 0 | 0 | 0 | 0 |
| 08485L000 | MEDICAL BN, LOGISTIC(FWD) | 0 | 6 | 0 | 6 | 0 | 4 |
| 08487L000 | LOG SPT CO, MED BN, LOG (FWD) | 0 | 3 | 0 | 3 | 0 | 2 |
| 08488L000 | DISTRIBUTION COMPANY | 0 | 3 | 0 | 3 | 0 | 2 |
| 08488A000 | MEDICAL LOGISTICS COMPANY | 0 | 4 | 0 | 4 | 0 | 2 |
| 08489L000 | MED TROOP, SPT SQDN, ACR | 0 | 1 | 0 | 1 | 0 | 0 |
| 08496A000 | HHD, MEDICAL LOGISTICS BN | 0 | 0 | 0 | 0 | 0 | 0 |
| 08497A000 | LOGISTICS SUPPORT COMPANY | 0 | 4 | 0 | 4 | 0 | 2 |
| 08527AA00 | HOSP AUG TM, HEAD & NECK | 0 | 0 | 0 | 0 | 0 | 0 |
| 08657L000 | THEATER ARMY MEDICAL LAB | 0 | 0 | 0 | 0 | 0 | 0 |
| 08695L000 | MEDLOG BN (REAR) | 0 | 7 | 0 | 7 | 0 | 0 |
| 08697L000 | LOG SPT CO, MED BN, LOG (REAR) | 0 | 4 | 0 | 4 | 0 | 2 |
| 08698L000 | DISTRIBUTION CO, LOG (REAR) | 0 | 3 | 0 | 3 | 0 | 2 |
| 08705L000 | COMBAT SUPPORT HOSPITAL | 0 | 1 | 0 | 1 | 0 | 1 |
| 08715L000 | FIELD HOSPITAL | 0 | 1 | 0 | 1 | 0 | 1 |
| 08725L000 | GENERAL HOSPITAL | 0 | 2 | 0 | 2 | 0 | 2 |
| 08858A000 | HOSP CO, 84 BED, NSB | 0 | 1 | 0 | 1 | 0 | 1 |
| 08863L000 | MOBILE ARMY SURGICAL HOSP | 0 | 1 | 0 | 1 | 0 | 1 |
| 08955A000 | COMBAT SUPPORT HOSPITAL CORPS | 0 | 2 | 0 | 2 | 0 | 2 |
| 08957A000 | HOSP CO, 164 BED, CORPS | 0 | 1 | 0 | 1 | 0 | 1 |
| 08958A000 | HOSP CO, 84 BED, CORPS | 0 | 1 | 0 | 1 | 0 | 1 |
| 31706L000 | HQ & MAIN SPT CO, SOSB (ABN) | 0 | 0 | 0 | 0 | 0 | 0 |
| 63906L000 | HQ & MAIN SPT CO, SOSB (ABN) | 0 | 0 | 0 | 0 | 0 | 0 |
| 63907L000 | FORWARD SPT CO (ABN) SETAF | 0 | 0 | 0 | 0 | 0 | 0 |

| Nomenclature | NSN | Model Number | Age | LE | Replacement Items/Life |
|---------------------------|------------------|---------------|-----|----|--|
| Sealing Machine | 3540-00-457-2706 | 2248 | 11 | 10 | Current, still in production |
| Refrigerator, Mech Blood | 4110-01-117-3902 | BBR37 | 10 | 10 | Interchangeable with HLT30V-4BB/NSN 4110-01-422-6809 |
| Refrig 1cuft Incap | 4110-01-287-7111 | M-50BT | 11 | 10 | 4110014512356, M-30TR |
| Refrigerator | 4110-01-291-7046 | 61RF0503 | 15 | 12 | 4110014258009, Model 6CRF |
| Freezer, Mech Blood | 4110-01-320-1699 | MBF-500 | 10 | 10 | Not current or available from MFG, no replacement identified |
| Ice Machine | 4110-01-373-0032 | BD0452A | 8 | 8 | Deleted, no replacement identified |
| Oven, Therm. Dr. | 4430-01-060-9235 | 24AX-1 | 10 | 10 | NSN not good, no knowledge of any replacement item |
| Cutter Ortho Cast 10" | 6515-00-323-4510 | 840 | 8 | 8 | Still current and being manufactured |
| Suction Pressure App. | 6515-00-782-2625 | 05 6500 | 10 | 10 | Semi-active, no replacement |
| Defibrillator/Monitor | 6515-01-174-2406 | LP 5 | 9 | 8 | Replaced by Lifepak 10/6515014534003 |
| Blood Recovery/Delivery | 6515-01-240-6883 | Cell Saver 4 | 10 | 8 | Deleted without replacement |
| Suction App | 6515-01-242-9123 | 308 | 12 | 10 | Replaced by 326M/NSN 6515-01-435-0050 |
| Drainage Unit 115/230v | 6515-01-259-4307 | 6053 | 8 | 8 | No replacement identified |
| Suction App | 6515-01-284-8704 | 305 | 14 | 10 | Replaced w/ Impact 325 |
| Tourniquet Sys Pneu | 6515-01-287-0607 | ATS 1500 | 8 | 8 | Replacement is ATS 2000, same NSN |
| Light Head | 6515-01-290-8949 | LUX31507 | 8 | 8 | No replacement identified |
| Monitor EKG | 6515-01-291-1198 | | 15 | 8 | Replaced w/ Protocol Propaq 206EL |
| Defib monitor | 6515-01-291-1199 | HP43110MC | 11 | 8 | Replaced by Lifepak 10/6515-01-453-4003 |
| Pulse Oximeter | 6515-01-293-5577 | Biochem 3040G | 15 | 5 | Replaced by SIMS BCI 3303G/NSN 6515-01-452-7697 |
| Suction Apparatus | 6515-01-304-6497 | 308M | 8 | 8 | Replaced by IMPACT 326M/NSN 6515-01-435-0050 |
| Defibrillator, Monitor | 6515-01-305-1157 | LP 5 | 8+ | 8 | Replaced by Lifepak 10/6515014534003 |
| Pacemaker Cardiac Ext | 6515-01-310-1687 | EC4542G | 8 | 8 | Replaced by 6515-01-491-4633 "W" |
| Thermometer, Clinical | 6515-01-313-6242 | 600 | 8 | 8 | No replacement identified |
| Monitor, Patient | 6515-01-315-6197 | Propaq 106 | 12 | 8 | Replaced w/ Protocol Propaq 206EL |
| Defibrillator, Monitor | 6515-01-345-9440 | LP 6 | 15 | 8 | Replaced by Lifepak 10/6515-01-453-4003 |
| Stimulator Ultrasound | 6515-01-378-4529 | 700C | 15 | 8 | Obsolete, no replacement identified |
| Cutter vacuum | 6515-01-379-7852 | G295202 | 8 | 6 | Current, no replacement identified |
| Monitor Patient Vital | 6515-01-418-2346 | 106EL | 8 | 8 | Replaced w/ Protocol Propaq 206EL |
| Monitor Patient Vital | 6515-01-423-5796 | 106EL | 8 | 8 | Replaced w/ Protocol Propaq 206EL |
| Monitor Patient Vital | 6515-01-423-5872 | 106EL | 8 | 8 | Replaced w/ Protocol Propaq 206EL |
| Monitor Patient Vital | 6515-01-423-5877 | 106EL | 8 | 8 | Replaced w/ Protocol Propaq 206EL |
| Lt Set Dental | 6520-00-000-0158 | LF II | 12 | 10 | Replaced w/Aseptic ALU-29CF/NSN 6520-01-446-4170 |
| Compressor, Dehy Dental | 6520-00-139-1246 | M5B | 11 | 10 | Replaced by PAC 6.7/same NSN |
| Chair and Stool Unit | 6520-00-181-7349 | CM185 | 12 | 10 | Replaced by ASEPTICO ADU-10CF/NSN 6520-01-446-3783 |
| Den Op Trt Unit | 6520-01-272-4531 | 3406 | 15 | 10 | Replaced by ASEPTICO /NSN 6520-01-456-7170 |
| Processing Mach 115V | 6525-00-420-9588 | CURIX60 | 11 | 8 | Replaced by Air Techniques 94050DL/NSN 6525-01-477-8734 |
| Processing Machine, Rad | 6525-00-823-8144 | 3474B | 9 | 8 | Discontinued without replacement |
| Xray App FLD Dental | 6525-01-099-2320 | D3152 | 11 | 12 | Replacement is DentalEZ HDX/NSN 6525-01-425-5216 |
| Illuminator Xray | 6525-01-230-0603 | FI0212 | 8 | 8 | Current but also interchangeable with 6525-01-147-0212 |
| Processing Machine, Rad | 6525-01-303-6235 | 14X3-MIL | 10 | 6 | No replacement identified |
| X-Ray App Radport | 6525-01-325-3740 | Portaray 1200 | 11 | 10 | Current, no replacement identified |
| Heater Heat Treat 4 PA | 6530-00-711-3000 | E-1 | 8 | 8 | Current item |
| Light Surgical Field | 6530-00-937-2204 | 5FL2204 | 8 | 8 | No replacement identified |
| Irrigator Surgical | 6530-01-314-1228 | Stryker | 12 | 10 | No replacement identified |
| Ventilator, Portable | 6530-01-324-4514 | PLV-102 | 10 | 10 | Replaced by IMPACT Eagle 754M/NSN 6530-01-455-1653 |
| Edger Hand Opth lens | 6540-00-299-8108 | HE160 | 11 | 10 | Item still being manufactured |
| Lense, Measuring Inst Oph | 6540-00-299-8134 | Y1-65-89 | 12 | 12 | No replacement identified, several lensmeters in UDR current |
| Sink, Surgical Scrub | 6545-01-117-3894 | 1001N-1-M | 17 | 10 | Replaced by Ran-Paige Scrub Sink/NSN 6530-01-429-6715 |
| Refractometer | 6550-00-933-3218 | 10400A | 10 | 10 | Current Item but renamed Reichert Cat No. 1310400A |
| Analyzer, Sodium k | 6630-01-298-7060 | 614 | 8 | 8 | Function replaced by Abbott iSTAT/NSN 6630-01-411-2405 |
| Analyzer, Sodium K | 6630-01-300-8711 | M614 | 10 | 8 | Function replaced by Abbott iSTAT/NSN 6630-01-411-2405 |
| Analyzer, Blood Gas | 6630-01-344-4058 | 4300M | 10 | 8 | Function replaced by Abbott iSTAT/NSN 6630-01-411-2405 |
| Coag Timer | 6630-01-344-9996 | Electra 750 | 8 | 8 | Current Item but serviced by Beckman-Coulter |
| Centrifuge, Lab | 6640-00-145-1180 | 522 | 10 | 8 | Current Item |
| Water Bath, Electric | 6640-00-765-0621 | 148003 | 11 | 10 | Current Item |
| Centrifuge, Lab | 6640-00-930-9034 | Z230 | 11 | 8 | No replacement identified |

Sample Data Collection Monthly Report March 2003



**Submitted to:
U.S. Army Medical Materiel Agency
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland**



Prepared by:
Information Systems Support Inc.
Robert Zak MS
Kevin Culihan
Report # 014

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Introduction: The U.S. Army Medical Material Agency (USAMMA) serves as the Army Medical Department's (AMEDD) strategic level medical logistics organization. USAMMA's mission is to enhance the medical material readiness throughout the full range of military health service support missions worldwide. In this role USAMMA develops and implements innovative logistics concepts and technologies as well as promoting military and medical logistics information and knowledge.

The agency's core skills and technologies center on conducting life cycle management for commercial and non-developmental items, sustaining and modernizing the medical force, supporting exercises and contingency operations and disseminating medical logistics information and knowledge. Two of USAMMA's critical groups tasked with this mission are the Maintenance Engineering Operations Directorate (MEOD) and the Technology Support Division (TSD). The MEOD is responsible for the maintenance of all the medical equipment while the TSD is responsible for ensuring the medical technology is sustainable and meets current and future utilization requirements.

In order to enhance the strengths of MEOD and TSD, USAMMA has contracted, (contract # DAMD17-01-D-0004), with McAdams Technologies Inc., (subcontracted to Information Systems Support Inc. March 2001), to develop and implement a sample data collection program for targeted medical devices. The overall focus of this program is to assist USAMMA in supplying medical field equipment, and DEPMEDS facilities with current, and sustainable medical technology in a fiscally efficient manner.

Scope: This document, the fourteenth Sample Data Collection (SDC) report, includes information on the potential for gravity free-flow problems with infusion pumps in unit assemblages, research into rotor requirements for newer centrifuges in maintenance depots that were procured without the rotors, and electrosurgery generators in unit assemblages deployed to Southwest Asia. Also included is information on a formulary of medical Special Purpose, Test, Measurement, and Diagnostic Equipment (TMDE-SP) for medical organizations deployed in support of Operation Iraqi Freedom.

Technology Support Issues

The following equipment and technology issues were addressed during March.

Infusion Pumps and Gravity Free-Flow Problems

SUBJECT: IV Pump Free-Flow Issue

1. **BACKGROUND.** E-mail was received from MEDCOM HQ wondering if there was a chance deployed medical assets could possibly have older infusion pumps that were able to “free-flow” medications.

2. **DISCUSSION.** In the later part of the 1990's a number of medication errors using infusion pump therapies were traced to "free-flow." When a door to an infusion pump was open and the fluid bags weren't clamped shut, fluids could free-flow through the tubing into the patient. If medications were added to the IV fluids, this resulted in drug overdoses. Because of the numbers reported, changes were engineered into the administration sets to preclude free-flow without human intervention. Today, IV administration sets for the American market are manufactured with some method of free-flow protection.

From speaking with personnel from MEOD, it appears infusion pumps were not widely included in older Unit Assemblages (UAs). The only infusion pumps identified in any of the UAs for TO&E facilities are the Alaris Medsystem III and the Infusion Dynamics Power Infuser. The Medsystem III comes with free-flow protection. The Power Infuser is NOT a drug delivery device; it is for rapid delivery of IV fluids only so its manufacturer states free-flow protection does not apply to this device.

3. **RECOMMENDATION:** The major issue with free-flow was NOT the pumps but the IV fluid administration sets. Older sets, before this problem came to light, required human intervention to clamp the tube to stop the flow of fluids when tubing was removed from the pumps. Administration sets have since been redesigned with free-flow protection so fluids won't flow without human intervention.



Figure 1. Alaris Medsystem III Infusion Pump

Centrifuges in Depot without Rotors

SUBJECT: Centrifuges in Depot purchased without rotors

BACKGROUND: During preventive maintenance at the Hill Depot, a number of new centrifuges could not be tested because they were purchased without rotors. Looking into the issue, it was noted centrifuges could be used for different purposes so companies have a variety of rotors to choose from based on the specific needs of the user. For instance, blood banks have a need for swinging bucket rotors while clinical laboratories have a need for rotors capable of securely holding specific sizes of test tubes or bottles. The cost of the rotors are relatively high so purchasing all available options would be cost prohibitive. Figure 1 is a picture of a Thermo IEC brand, model PR-7000M refrigerated floor model centrifuge that were purchased without rotors. These units were earmarked for use in a blood bank assemblage and, as such, required swinging bucket rotors as seen in Figure 2 at a cost of over \$4,000 each. Figure 3 shows an optional fixed-angle rotor that could also be procured.



Figure 2. PR-7000M Centrifuge



Figure 3. Swinging Bucket Rotor

RECOMMENDATION: Separate national stock numbers should be assigned to centrifuges based on where the centrifuges will be used, even if the same model centrifuge is used in different environments. The essential characteristics for the centrifuges (ECs) should take into account where they will be used and the rotor choice that needs to be purchased as part of the system to make it fully usable.



Figure 4. Fixed-Angle Rotor

Electrosurgery Units and Pencil Electrodes

SUBJECT: Incompatibility between electrosurgical apparatus and pencil electrodes being used in Southwest Asia

BACKGROUND: A complaint was received from the Medical Logistics Support Team (MLST) supporting medical operations in Southwest Asia. The complaint mentioned the electrosurgical pencils supplied in the unit assemblage were incompatible with the electrosurgical unit.

DISCUSSION: In researching this issue, the pencils included with the electrosurge were found to be compatible with the unit but they didn't have electrodes installed. The problem was with the electrodes in the assemblage that should have, but didn't, fit the existing hand pieces. The pencils were compatible but the replacement electrodes in the assemblage were meant for an older model pencil and those electrodes were not updated when the electrosurge unit was modernized. A Valleylab representative mentioned that although many third-party pencils are compatible for use with Valleylab equipment, the replaceable electrodes are unique to the manufacturer and so they may or may not be compatible with other makes and models of pencils. In this case, the electrodes would not work with the newer pencils.



Figure 5. Valleyslab Force FX



Figure 6. Valleyslab Force 2

RECOMMENDATION: Valleyslab models SSE2L, Force FX, and Force 2 can use the electrosurgical supplies listed in the 2267 FST unit assemblage, among them is a disposable pencil, a reusable pencil, and patient return electrode pad. Although there are many other options available for electrosurge units, for example footswitches, ball electrodes, and bipolar forceps, the environment these units are used in makes them fully operational with basic hand pieces and patient grounding pads. The accessories shown in Table 1 should be compatible with all current Valleyslab electrosurge units.

Table 1. Valleyslab SSE2L, Force FX, and Force 2 Electrosurgical Generator Consumables.

| NSN | Nomenclature | PN | QTY | UI | Unit Price | Total Price | MFG | Shelf Life, months | Refrig Y/N |
|------------------|---|--------|-----|-------|------------|-------------|-------------------------------|--------------------|------------|
| 6515-01-197-7649 | Electrode, grounding, single use | E7507 | 1 | 50 PG | \$3.19 | \$159.98 | Tyco Healthcare DBA Valleylab | Indef | N |
| 6515-01-156-3011 | Electrode, electrosurgical apparatus with removable blade | 130305 | 1 | 40 PG | \$5.96 | \$238.43 | ConMed | Indef | N |
| 6515-01-096-0217 | Handle and electrode set, electrosurgical apparatus | E2100 | 1 | 10 EA | \$25.53 | \$255.29 | Tyco Healthcare DBA Valleylab | Indef | N |



Figure 7. Examples of Valleylab Pencils



Figure 8. Examples of Valleylab Patient Return Electrodes

MEOD Issues

The following maintenance issues were addressed during March.

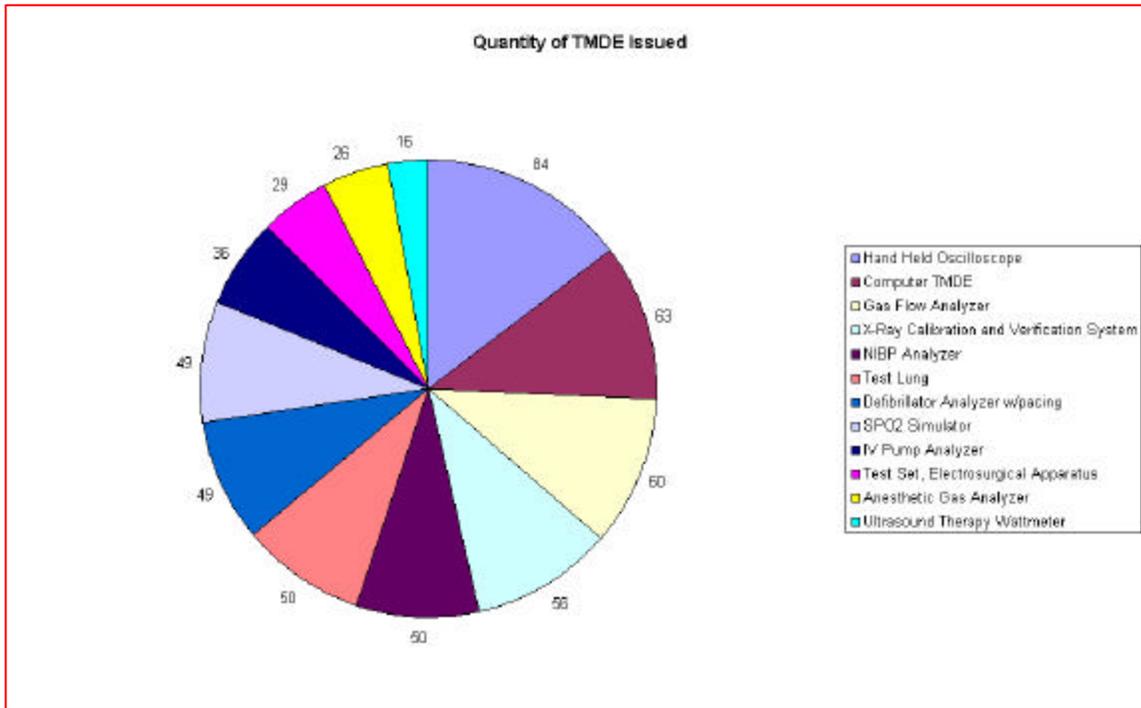
Test, Measurement, and Diagnostic Equipment (TMDE)

The Maintenance Engineering and Operations Directorate, US Army Medical Materiel Agency has compiled and distributed a formulary of medical Special Purpose, Test, Measurement, and Diagnostic Equipment (TMDE-SP) for medical organizations deployed in support of Operation Iraqi Freedom.

The Medical Maintenance Operations Division, Tracy, received, processed, and issued approximately 600 TMDE-SP items to deployed and deploying medical units with a medical maintenance mission.

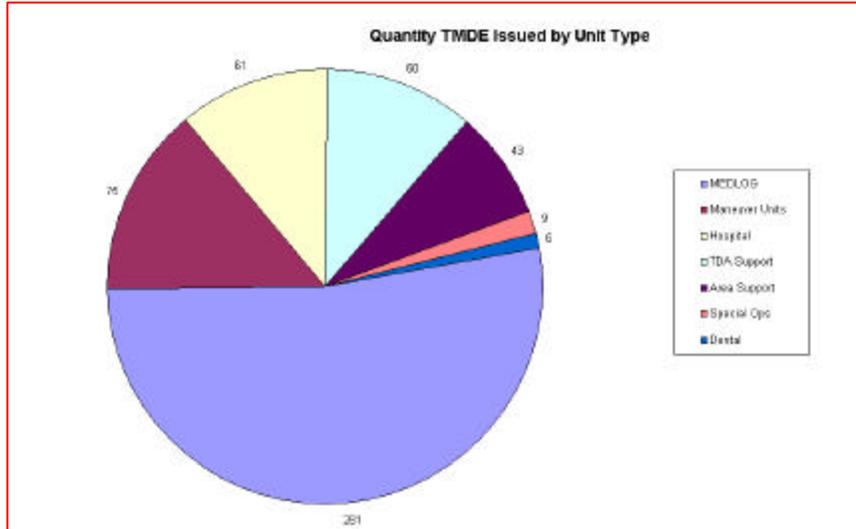
A break down the types and quantity of TMDE-SP that were issued is depicted in Graph 1.

Graph 1. Quantity of TMDE Issued.



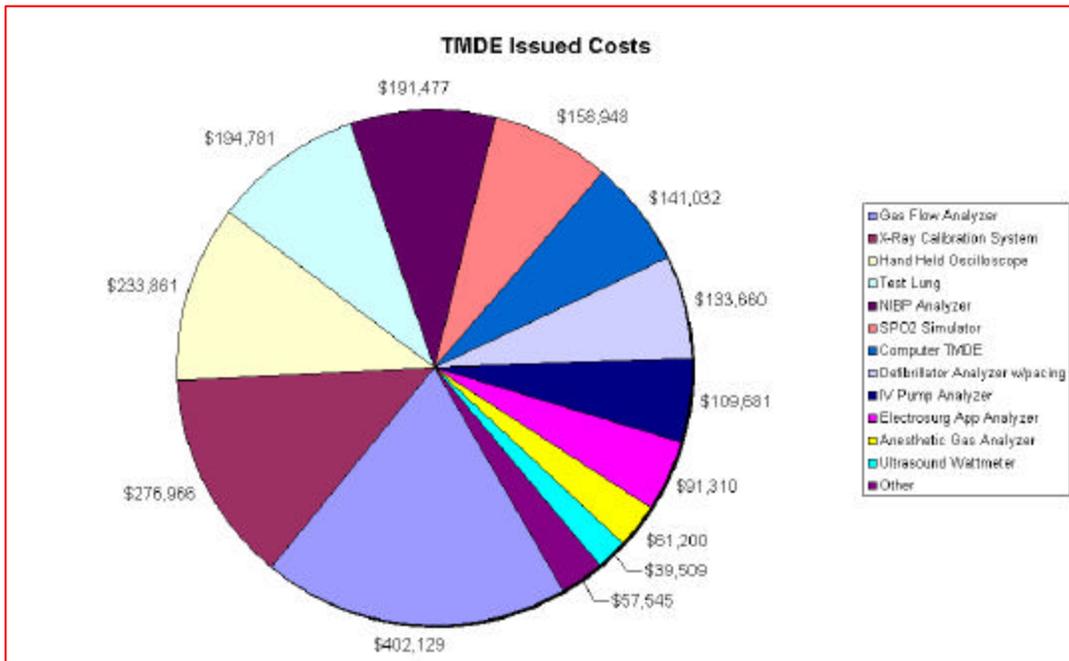
A break down the quantity of TMDE-SP that were issued to the different types of organizations is depicted in Graph 2.

Graph 2. Quantity of TMDE Issued by Unit Type



The costs associated with each type of TMDE-SP that was issued to the deploying force is depicted in Graph 3.

Graph 3. Costs of TMDE Issued.



Sample Data Collection Monthly Report April 2003



**Submitted to:
U.S. Army Medical Materiel Agency
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland**



Prepared by:
Information Systems Support Inc.
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Kevin Culihan
Report # 015

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Introduction: The U.S. Army Medical Material Agency (USAMMA) serves as the Army Medical Department's (AMEDD) strategic level medical logistics organization. USAMMA's mission is to enhance the medical material readiness throughout the full range of military health service support missions worldwide. In this role USAMMA develops and implements innovative logistics concepts and technologies as well as promoting military and medical logistics information and knowledge.

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In order to enhance the strengths of MEOD and TSD, USAMMA has contracted, (contract # DAMD17-01-D-0004), with McAdams Technologies Inc., (subcontracted to Information Systems Support Inc. March 2001), to develop and implement a sample data collection program for targeted medical devices. The overall focus of this program is to assist USAMMA in supplying medical field equipment, and DEPMEDS facilities with current, and sustainable medical technology in a fiscally efficient manner.

Scope: This document, the fifteenth Sample Data Collection (SDC) report, includes information obtained during an SDC survey and technology assessment of the 994th Medical Detachment in Austin, Texas that recently returned from a six-month field deployment to Afghanistan in support of Operation Enduring Freedom. Also included is an effort by the Laboratory Combat Developer to standardize centrifuges found in the Laboratory Unit Assemblages. Finally, there is a comparison of the costs for procuring medical Special Purpose, Test, Measurement, and Diagnostic Equipment (TMDE-SP) as well as Medical Standby Equipment Program (MEDSTEP) items by two different procurement sources and the savings realized by using the U.S. Army Medical Research Acquisition Activity (USAMRAA) instead of the Defense Supply Center Philadelphia (DSCP).

Technology Support Issues

The following equipment and technology issues were addressed during April.

Report from Visit to 994th Medical Detachment (Veterinary Services)

SUBJECT: Trip Report for SDC Visit to 994th Medical Detachment (Veterinary Services), Austin, Texas. 28-30 April, 2003.

1. Robert Zak, Clinical Engineer Consultant from ISS, Inc. on contract to the US Army Medical Materiel Agency-Technology Support Division, visited the 994th Medical Detachment for the purpose of conducting a Sample Data Collection survey. He met with LTC Craig Carter, USAR, VC and SGT Kimberly Woodhouse to gather information and feedback from the unit's six-month rotation in support of Operation Enduring Freedom (OEF).
2. Many of the issues discussed are covered in a memorandum written by LTC Carter and is included at the end of this trip report. The memorandum also includes feedback from members of the unit who were deployed. Many of the issues were brought to Mr. Zak's attention during his visit and possible solutions were discussed. In the case of vital signs monitors, it should be noted veterinary units were slated to receive vital signs monitors but the 994th Medical Detachment did not have them during their deployment and had not received them prior to this visit.
3. The unit's anesthesia unit was the Ohmeda 885A. The unit is heavy and cumbersome and there was a question of whether this unit could deliver new anesthetic agents. This anesthesia unit is considered obsolete and is being replaced in operating suites by the Narkomed M. There are veterinary-specific anesthesia units available that are light, more mobile, and possibly cheaper to operate instead of having to adapt human anesthesia units for veterinary purposes.
4. Two centrifuges were looked at. One was a Hermle Z230, which looked to be in very good shape. The other unit was a Clay Adams Compact II that was also well taken care of. The problem was the centrifuges were specific to either doing hematocrits or spinning blood in tubes. There are centrifuges that are capable of doing both.
5. Refrigeration units assigned to the unit were Thermopol solid-state refrigerators. These were not considered very useful, as their capacity was very limited. The units also did not have clinical laboratory capabilities so specimens needed to be shipped out of the local area for testing but they could not be packed properly because they had no ice-making capabilities. Refrigerators with ice-making capabilities for packing specimens for shipment would be a useful addition.
6. The exam/surgical tables assigned to the unit were small and heavy. They functioned well as exam tables but also had to double as surgical tables, which presented a problem because their length was not adequate for operating on military working dogs. Also, because of a dog's skeletal structure, a v-trough of some sort would assist the veterinarian working on a dog. A surgical table with a v-trough capability or a separate v-trough item that could be placed on the surgical table to support the dog's backbone would help in this respect. The current surgical table used with the Forward Surgical Teams could work if a v-trough adapter was also included.

7. The self-contained field surgical light was not a useful item. Its bulky size, when put together, made it difficult to fit into the tents assigned to the detachment. A more useful system could be the surgical table used by the Forward Surgical Teams (FST) that includes smaller exam lights that integrate with the stand assembly and could be easily adjusted.

8. The otoscope and ophthalmoscope set had rechargeable batteries that did not hold a charge for very long. Once initially charged, NiCad batteries develop a memory and if they aren't exercised on a regular basis (fully charged and then fully discharged) their capacity to hold a charge diminishes. Changing to a handle that uses "C" or "D" size batteries wasn't a good idea because keeping an adequate supply of batteries was difficult. Changing from NiCad to Lithium rechargeable batteries sounded like the right solution because lithium batteries do not retain a memory like NiCad batteries do. Also, the speculum's supplied with these sets are for human use. Dogs, however, have a deeper ear canal and require a selection of sizes that are longer. Veterinary specific speculums are available.

9. Hair clippers and the assortment of blade attachments do not fit the clipper. The model of clippers may have changed over time with a change in blade attachment mechanisms but the blade attachments are separate line items in the UA that may not have been addressed.

10. Computers are not part of the UA but many medical research mechanisms are found either on-line or are contained on compact disk that cannot be accessed unless someone brings a personal computer on the deployment. The computer capability is then dependent on the computer owner's rotation schedule.

11. Each squad of the detachment travels with a kit for inspecting meat slaughtered in country (UA1909). If all food will be shipped in, as was the case on this deployment, this UA could be eliminated or the allowance reduced, the savings amount to approximately 400 pounds per set.

12. Other items concerning the deployment that were not discussed during the visit but were received from the members of the unit are contained in the memorandum submitted by LTC Carter and is included below.

Robert Zak
Clinical Engineer Consultant, ISS, Inc.
USAMMA
Fort Detrick, MD

Enclosure: The following memorandum contains feedback from the Commander of the 994th Medical Detachment (Veterinary Services Large), an Army Reserve unit recently returned from a six-month field deployment in support of Operation Enduring Freedom (OEF).

MEMORANDUM FOR Veterinary Services (VS) Combat Development, Fort Sam Houston, TX and Mr. Robert Zak, Clinical Engineering Consultant to USAMMA, Fort Detrick, MD and others involved in equipment planning and sourcing for VS units

THRU COL Alvin Baumwart, Commander, 994th MED DET Austin, TX, COL David Trask, Commander 406th MED DET, Austin, TX

SUBJECT: Feedback from U.S. Army Veterinary Corps officers and enlisted recently deployed: How well are USAR Veterinary Services Large units equipped to mobilize and deploy?

1. Overview-- The 994th MED DET was deployed in two increments to Southwest Asia during the period Nov 2001 through Aug 2002 in support of Operation Enduring Freedom (OEF). The 109th MED DET relieved the 994th in Aug, 2002 and is still in theatre. During these deployments, equipment deficiencies have been noted by the officers and enlisted members of these units. Some of this information has been disseminated to individuals in Combat Development at Fort Sam Houston, at the CFLCC OEF Medical AAR in Oct 2002, to the Council on Army Veterinarians (CAV) and former Veterinary Corps Chiefs meetings in Feb, 2003. On 29 Apr 2003, LTC Craig Carter (Commander of the 994th MED DET during the deployment) met with Mr. Robert Zak, USAMMA consultant as part of a technology assessment of the 994th MED DET. This document is an attempt to more completely summarize the concerns regarding the appropriateness of equipment available to these units for deployment. In as much as the Veterinary Service Large equipment sets have not been modernized for over two decades, we sincerely hope that this report will help those who are in a position to correct these deficiencies and to better understand the problems that arose in the field during these deployments. We are aware of the proactive work being done by CW5 Farrell and CW4 Barnes in revamping the 1913 and 1914 kits and also building of the Audit Inspection Kit, Field Test Kit and the Food Inspection Kit. This is very good news and we are all looking forward to receiving more information on these new kits.

2. Doctrinal philosophy-- The Army doctrine for a Veterinary Services Large unit is for a full deployment with functional squads to be positioned within 50 km of the headquarters unit. However, all deployments in recent history have been partials with a wide distribution of squads, sometimes well over 500 km apart from the headquarters. If this mode of deployment is now the norm, then each squad must be prepared to provide Level 2+ care. This doctrinal change will necessitate changes in the equipment available for deployment. Another important question is should field slaughter still be considered a valid Veterinary Services function? If not, some equipment sets can be shrunk or eliminated (Note: the 994th MED DET does not have the current edition of the Class 1-2 SKO).

3. General Observations --

Surgery and medicine supplies and equipment are commingled making it difficult to find things.

Solution— Separate the supplies and equipment for surgery and medicine and place in separate kits.

Ante-Mortem/Field Slaughter necessary? Solution-- If field slaughter is not an option, this can equipment can be eliminated.

Food Inspection Kits necessary? Solution— Since we now do not procure meat overseas can these kits be eliminated? Individual inspector kits are still useful however—could be updated.

SKO's are too bulky, difficult to organize for a mobile operation. Solution—Outfit HMMWV's with a Bowie or Bowie-like unit with refrigeration and running water capability and stock with only the necessary equipment and drugs. This would enable a mobile medicine and HMMWV-side minor surgery capability for MWDs, privately-owned animals and also for large animal medicine calls (POAs and Humanitarian Assistance mission-related livestock).

PCAMS descriptions of items are vague if the stock number is not available. Suture material is a good example. The descriptions don't state size, material, needle included. Solution—Recommend a way to expand the nomenclature in PCAMS on these items or cross reference to a products on the market that are recognizable.

Food Inspection and Necropsy supplies are hard to obtain through USAMMA because they aren't considered true medical items. Solution—Make these items available through USAMMA.

Current formulary out-of-date. Solution—Update formulary based on the input of young VCOs that are actively practicing veterinary medicine.

4. Major Medical Equipment Problems/Needs--

No computer technology for squads in the field. Needed for access to approved source lists and other medical and food safety resources on the web, for writing reports, email for command and control, basic telemedicine capability. Solution— Provide a laptop computer, printer and digital camera for each squad.

Surgery table too heavy, too short, and inappropriate for MWD surgery. The stainless steel surgery table with folding legs is too short and does not provide a V-stand in support of a MWD surgery. Solution— Replace with a FST (Field Surgery Table) with a V-stand or other appropriate veterinary surgery table. The FST table has integrated surgical lighting that will eliminate the need for a separate surgery light (see surgery light problem listed below).

Gas anesthesia machine bulky, expensive and outdated and not enough units available. Existing vaporizer may not work with newer anesthetic agents. Solution—Replace with newer, lighter and less bulky (table-top?) anesthesia machines and if doctrine changes on distance between squads, provide one per squad. Vaporizer operation is questionable in very hot climates with no environmental control units (ECUs). Provide one anesthesia machine per squad to facilitate deployments with large distances between mission sites.

Fluid administration tools not available. Solution—Provide an infusion pump (USAMMA consultant suggests the Alarias Med System III).

No access to clinical laboratory testing. Solution— Provide an I-Stat unit to do serum electrolytes, blood gases, hematocrit, glucose, BUN and more. However, this unit will require more refrigerated storage for extending the life of reagents. Other units such as the Abaxis VetScan Clinical Chemistry and Hematology systems might be appropriate for basic field laboratory support (Chem panels and differentials).

No ability to monitor vital signs during surgery and after. Solution—Provide a vital signs monitor (USAMMA consultant suggest the Propaq 206 by Welch Allyn).

No radiology capability. Military hospitals cannot always be relied on to help fulfill radiology needs of veterinary units. Solution—Provide a portable, digital radiology unit. The digital unit would eliminate the need for a developer and reagents and would also tie directly in with a telemedicine capability (USAMMA consultant suggests the Min Xray veterinary unit coupled with the Kodak ACR 2000 digital imaging system).

Field refrigerator (Thermopol) is unreliable, has limited storage, no freezer compartment. Solution—replace or augment with newer technology that is lighter, more durable and has more storage and freezer capability (re email from LTC Mack Fudge, “New refrig/freezer”, 29 Jan 2003).

No capability for rapid detection of pathogens. Microbiology laboratory capability is minimal or non-existent in the theatre and it is difficult to get specimens to major labs (VLE in Landstuhl) quickly. Also, Preventive Medicine units are not always in theatre to do this testing. Solution—consider providing Colilert by IDEXX, Charm LUM-T or other rapid diagnostic test kits/instruments. A major consideration on these units is storage, cost and shelf-life of reagents.

Centrifuge bulky/breaks down regularly. Solution—Identify and procure a lighter, more mobile and reliable centrifuge for each squad that can spin tubes for serum separation as well as capillary tubes for hematocrit determination. Current model in inventory is heavy and subject to frequent breakdowns.

Surgery light too large for frame tents and is cumbersome to set up and repack. Solution— Using the FST will eliminate the need for this light. Otherwise, source a smaller, more practical field surgical lamp.

Reference books are bulky and out-of-date. Solution—VCOs should have access to information resources on the Internet such as Veterinary Information Network (VIN). Other resources should be provided on CDs kept up-to-date through annual maintenance contracts (e.g. 5-minute Consultant, ACVIM proceedings).

Otosopes/Ophthalmoscopes not appropriate and do not hold charge. Solution--Provide veterinary cones and purchase lithium rechargeable battery packs.

Blades don't fit hair clippers. Solution—Provide the appropriate size and type clipper blades for the clippers in our inventory.

Mercury thermometers useless in hot climates. Solution—Provide digital or laser thermometers.

Dental instruments inadequate. Solution—Procure the additional instruments (POC CPT O'Neal, 994th MED DET).

Animal control gear lacking. At literally all sites, animal control problems exist and task force Commanders look to VS to help solve these problems. At evolved posts/bases, this would be a PMO or a DPW function. In immature theatres, this support will likely not be available and VS will probably have to get involved. Solution—Provide a base set of animal control equipment—humane traps, squeeze cages, dart gun, capture snares, etc.

5. Medical Consumables Problems/Needs--

Equipment set formulary needs updating, some drugs not available through USAMMA. Solution--Formulary should undergo an annual review and update. Add newer drugs into the system to make them easily available to deployed units.

Need more variety in available suture material, descriptions in UA listings not adequate (e.g. with or without needle?, type of suture?). Consumables available through USAMMA need to undergo regular reviews and updating. Nomenclature in computer should be clarified as to the exact type of product.

6. Major Non-Medical Specific Equipment Problems/Needs--

Information Technology equipment non-existent. Much of the emphasis in improving Veterinary Services by the U.S. Army in the last decade has been through the application of information technology (i.e. Lotus Notes, deployment CDs, etc). In addition, the U.S. Army has spent an enormous amount of money to create on-line services for soldiers (EMSS, U.S. Army On-Line and much more). Because of satellite technology, Internet access is available almost immediately in deployed areas, sometimes even before telephone service (NIPRNET and SIPRNET access was available very early on in the Afghanistan theatre). On extended remote deployments, there may be no other way to maintain one's veterinary license other than to do Continuing Education on the Internet. An unlicensed VCO is no longer a useful asset to the U.S. Army. Yet there has been no money allocated to provide computers for MTOE units that deploy. Solution—Make the funds available to provide a laptop computer, printer, and a digital camera available for each squad in a VS Large or Small unit.

ECU's needed in hot climates. Southwest Asia theatre can have temperatures exceeding 130 degrees Fahrenheit for weeks on end. Digital equipment, computers, anesthesia machine vaporizers and other equipment will not function reliably under these conditions. Solution—provide an adequate number of ECUs for deployment with all USAR VS units. However, this would also necessitate having a dedicated 10KVA generator per ECU.

Generators are outdated and it is almost impossible to obtain repair parts in the field. In Afghanistan, our generator was absolutely essential to the performance of our mission as Prime Power was not available until after we left the theatre. In addition, repair and maintenance parts were not readily available. Solution—Provide newer, maintainable generators.

Hand tools needed. When establishing and maintaining operations in a new theatre, basic innovative construction has a major role in building floors for the tents, installing equipment in the new environment, etc. Solution—Provide a basic battery powered tool set (drill, saw, screw driver, hammers, etc).

Basic transportation is essential. The 994th was denied deploying with its rolling stock. Once in theatre, making the rounds at the flight line and the SSA required miles of walks daily and precluded the movement of subsistence for inspection at the vet tent (e.g. MREs). Solution—Assuming veterinary units will not be able to take their HMMWVs on deployments, alternate modes of transportation must be provided in the theatre (e.g. John Deere Gators).

Adequate communication gear. Veterinary Service Large units only have 3 DNVF telephones authorized in the MTOE yet in the recent deployment, we had six squads scattered in different countries. Solution—Provided one DNVF telephone per squad. Consider providing satellite phones for command and control communications between squads and headquarters. Walkie-talkies would be very useful for on post operations.

Need for secure storage. Secure storage capability for items larger than what can be placed in the field safes was needed in many locations. Solution—Consider providing conex-like large storage containers that could be used for shipping equipment on pallets during deployment and then storage and security of equipment while in the field.

Tents not adequate for all types of operations and too few in number. Solution— Provide temper, frame or modular tents that are suitable for use with ECUs and are easy to set up and break down. Two-man tents would be useful for highly mobile operations (re recent operations of the 109th MED DET in Iraq). In addition, each squad needs 3 frame tents (assuming frame tents will be the norm)—one for quarters, one for storage, and one for the clinic.

7. We would all like to thank you for requesting for our input and for taking the time to read about and understand some of the problems experienced during the recent deployment. Updating some of the equipment and making some important additions will, in our opinion, help to greatly increase the effectiveness of VS units in the field and will also improve the morale and professional satisfaction of the soldiers that are doing the job. Please don't hesitate to call me with any questions you might have. If I can't help you directly, I will refer you to one of our many subject matter experts in the unit.

CRAIG N. CARTER, LTC USAR VC
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994TH MEDICAL DETACHMENT (VET SVC LGE)
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Effort to Standardize Centrifuges in Laboratory Sets

SUBJECT: Major Kevin Belanger, the Combat Developer at AMEDD Center and School, has compiled a list of centrifuges that would both modernize and standardize the centrifuges in the laboratory sets he is responsible for. Current centrifuges have multiple uses with several options for rotors and adapters specific to their use. However, these rotors and adapters have to be ordered as separate line items along with the centrifuge as none are included with the centrifuge. In recent months, maintenance depots found newer centrifuges that were purchased without rotors so operational checks could not be performed on them. Separate purchase orders then had to be submitted for the additional parts to make operable systems, which required additional research to find out what assemblage they were earmarked for to ensure proper rotors and accessories were identified. This effort by the Combat Developer will standardize centrifuge models and designate not only which centrifuge should be purchased, but also which rotors and accessories need to be ordered along with it specific to the Unit Assemblage (UA) it was purchased for. The following is that list.

Centrifuge Requirements **(April 2003)**

1. This is a list of centrifuge requirements **for laboratory sets only.**

164 BED NSB CSH (08857A000)

None Required

84 BED NSB CSH (08858A000)

M303 Lab

6640-01-495-4051 IEC Table Top Centrifuge (CL2) Product # 426 (2)
Rotor with swinging bucket for above 6640-01-495-3773 (2)
Adapter 5-7ml inserts 6640-01-495-5598 (2 pair)
Adapter 7-10ml inserts 6640-01-495-5607 (2 pair)
Adapter 15ml inserts 6640-01-498-2122 (2 pair)

6640-01-499-0533 IEC Specialty Centrifuge Product # 8464 (1)
Rotor with swinging bucket for above 6640-01-499-1632 (1)
Adapter 5x15ml and 4x12ml 6640-01-499-1637 (1 pair)
Adapter 4x250ml 6640-01-500-4272 (1 pair)
Adapter 2x50ml and 2x20ml 6640-01-499-1640 (1 pair)

M304 Lab Blood Bank

Working new NSN IEC Refrigerated Centrifuge GP8R Product # 3122 (1)
Rotor with swing bucket Product # 228 working new NSN (1)
Adapter 7-15 ml inserts Product # 5719 working new NSN (1 pair)
Adapter 5-7 ml inserts Product # 5827 working new NSN (1 pair)
Adapter for Blood Bags Product # 2077 working new NSN (2 pair)

164 BED SB CSH (08957A000)

M703 Lab

6640-01-495-4051 IEC Table Top Centrifuge (CL2) Product # 426 (2)
Rotor with swinging bucket for above 6640-01-495-3773 (2)
Adapter 5-7ml inserts 6640-01-495-5598 (2 pair)
Adapter 7-10ml inserts 6640-01-495-5607 (2 pair)
Adapter 15ml inserts 6640-01-498-2122 (2 pair)

M704 Lab Blood Bank

Working new NSN IEC Refrigerated Centrifuge GP8R Product # 3122 (2)
Rotor with swing bucket Product # 228 working new NSN (2)
Adapter 7-15 ml inserts Product # 5719 working new NSN (2 pair)
Adapter 5-7 ml inserts Product # 5827 working new NSN (2 pair)
Adapter for Blood Bags Product # 2077 working new NSN (2 pair)

84 BED SB CSH (08958A000)

M503 Lab

6640-01-495-4051 IEC Table Top Centrifuge (CL2) Product # 426 (2)
Rotor with swinging bucket for above 6640-01-495-3773 (2)
Adapter 5-7ml inserts 6640-01-495-5598 (2 pair)
Adapter 7-10ml inserts 6640-01-495-5607 (2 pair)

Adapter 15ml inserts 6640-01-498-2122 (2 pair)

M504 Lab Blood Bank

Working new NSN IEC Refrigerated Centrifuge GP8R Product # 3122 (2)

Rotor with swing bucket Product # 228 working new NSN (2)

Adapter 7-15 ml inserts Product # 5719 working new NSN (2 pair)

Adapter 5-7 ml inserts Product # 5827 working new NSN (2 pair)

Adapter for Blood Bags Product # 2077 working new NSN (2 pair)

MEDICAL COMPANY (08457A000)

MES 0263 Lab Light

6640-01-495-4051 IEC Table Top Centrifuge (CL2) Product # 426 (1)

Rotor with swinging bucket for above 6640-01-495-3773 (1)

Adapter 5-7ml inserts 6640-01-495-5598 (1)

Adapter 7-10ml inserts 6640-01-495-5607 (1)

Adapter 15ml inserts 6640-01-498-2122 (1)

BLOOD DETACHMENT (08489A000)

MES 0503 Blood Bank Processing

Working new NSN IEC Refrigerated Centrifuge GP8R Product # 3122 (2)

Rotor with swing bucket Product # 228 working new NSN (2)

Adapter 7-15 ml inserts Product # 5719 working new NSN (2 pair)

Adapter 5-7 ml inserts Product # 5827 working new NSN (2 pair)

Adapter for Blood Bags Product # 2077 working new NSN (2 pair)

6640-00-145-1180 Centrifuge 115V Beckon and Dickerson single phase no rotor needed.
(Serofuge)

ADDITIONAL UNITS

MMS 403 Lab Microbiology

6640-01-499-0533 IEC Specialty Centrifuge Product # 8464 (1)

Rotor with swinging bucket for above 6640-01-499-1632 (1)

Adapter 5x15ml and 4x12ml 6640-01-499-1637 (2)

Adapter 4x250ml 6640-01-500-4272 (2)

Adapter 2x50ml and 2x20ml 6640-01-499-1640 (1)

Kevin J. Belanger

MAJ, MS

Combat Developer

210-221-2791

MEOD Issues

The following maintenance issues were addressed during April.

Procurement of Test, Measurement, and Diagnostic Equipment (TMDE)

As a result of advances in medical equipment technology and the fielding of new equipment items to the medical organization throughout the Army, it was imperative to field a substantial quantity of Special Purpose (Medically Unique), Test, Measurement, and Diagnostic Equipment (TMDE-SP) to the deploying forces in support of Operation Iraqi Freedom. A decision was made to utilize the U. S. Army Medical Research Acquisition Activity (USAMRAA) rather than the Defense Supply Center Philadelphia (DSCP) to procure the TMDE-SP was based on DSCP's decision to incorporate a 74% surcharge on all TMDE procurements. By using DSCP, the U.S. Army Medical Materiel Agency's (USAMMA) purchasing power would have been cut by 42%. As a result of using USAMRAA, USAMMA was able to realize savings of \$1,809,084 in TMDE-SP procurements alone. See Chart 1 for cost comparison of equipment item by procurement source.

In addition to filling the TMDE-SP shortages to the deploying medical forces, it was also necessary for USAMMA to procure specific legacy medical equipment items to be included in the Agency's Medical Standby Equipment Program (MEDSTEP) to support medical logistics operations in theater. Again, DSCP announced it's intent to add a 74% surcharge on the MEDSTEP items the Maintenance Engineering and Operation Directorate identified for the program so once again the decision was made to utilize USAMRAA rather than DSCP to procure the legacy MEDSTEP assets. Utilizing DSCP would have again resulted in the diminishment of USAMMA's buying power by 42%. As a result of utilizing USAMRAA, USAMMA was able capitalize a savings of \$240,209 in MEDSTEP procurements. See Chart 2 for cost comparisons for MEDSTEP items by procurement source. By using USAMRAA instead of DSCP for ordering TMDE and MEDSTEP equipment, USAMMA was able to capitalize a total savings in excess of \$2,000,000.

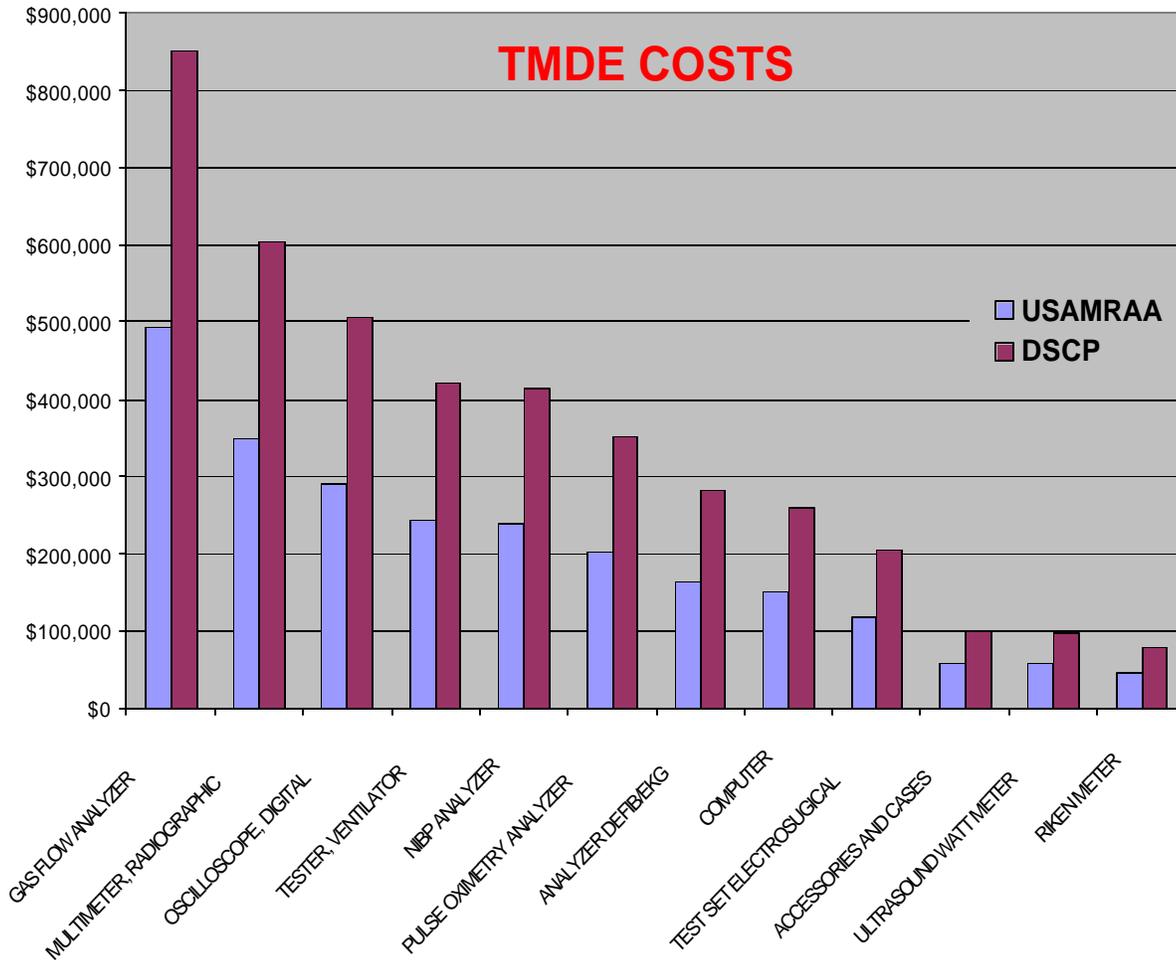


Chart 1. Cost comparison for procuring Test, Measurement, and Diagnostic Equipment (TMDE) between the U.S. Army Medical Research Acquisition Activity or Defense Supply Center Philadelphia.

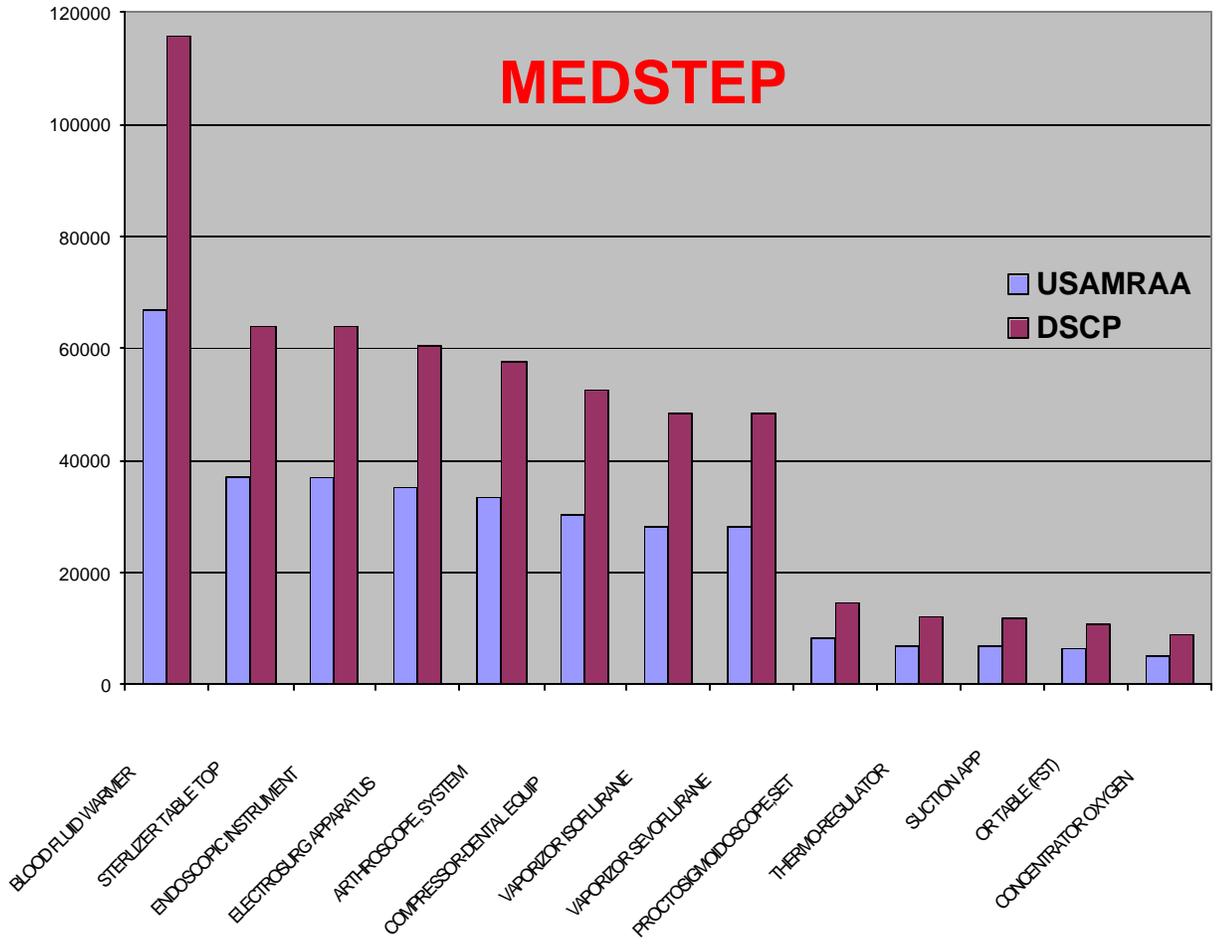


Chart 2. Cost comparison between using the U. S. Army Medical Research Acquisition Activity and Defense Supply Center Philadelphia for procuring legacy equipment for the MEDSTEP program.

With the implementation of the Forces Command (FORSCOM) Hospital Optimization Standardization Program (HOSP) initiative, it is imperative that the 164 Bed, Hospital Company associated with each Combat Support Hospitals be routinely serviced and maintained in a fully mission capable posture. Cost estimates to support the required annual scheduled services maintenance program were calculated and provided to the FORSCOM. These estimates are based on the maintenance man-hours required to perform preventive maintenance, calibration, and electrical safety, as well as minor repairs of the medical equipment densities to be placed in storage at Sierra Army Depot. The estimates include anticipated maintenance kits and parts, and the TDY costs associated with the medical equipment repairers traveling to Sierra Army Depot, being on location for the duration of time necessary to complete each hospital, and returning to the soldiers home station. The following table depicts the estimated costs.

Table 1. Annualized estimate of maintenance costs for a 164 Bed Hospital Company

| Unit Description | PM Kits | Repair Parts | TDY COSTS | | | | | | | Total per SRC | QTY | Annual Cost |
|--------------------------|----------|--------------|-----------|-----|----------|----------|------------|----------|----------|---------------|-----|------------------|
| | | | Days | 91A | Per Diem | Lodging | Car Rental | Air Fare | Total | | | |
| HOSP CO, 164 BED, NSB | \$15,000 | \$15,000 | 19 | 8 | \$6,013 | \$9,019 | \$4,228 | \$5,600 | \$24,859 | \$54,859 | 3 | \$164,578 |
| HOSP CO, 164 BED, CORPS | \$15,000 | \$15,000 | 19 | 10 | \$7,564 | \$11,345 | \$5,673 | \$7,000 | \$31,582 | \$61,582 | 6 | \$369,491 |
| Total Annual Cost | | | | | | | | | | | | \$534,069 |

| TDY PLANNING FACTORS | | |
|----------------------|----------|--|
| Per Diem/Person/Day | \$40 | Car Rental with Fuel per day, per 3 Persons \$75 |
| Lodging/Day Person | per \$60 | Air Fare with Taxi per person \$700 |

The recent addition of “medical” Line Item Numbers (LINs) to the Army’s Training Resource Model (TRM) was recognized as a method to ensure that the medical organizations within the TOE Army receive the appropriate funding associated with annual training requirements to include the related unit level maintenance and sustainment. At present, the only medical LINs documented in the TRM are for Medical Equipment Sets (MES) and Dental Equipment Sets (DES). This ensures some funding is acknowledged for the Division level Medical Companies and some of the Corps level medical support organizations, however the training and sustainment dollars to support the Combat Support Hospitals are not currently in the TRM. The following table depicts a break-out of funding requirements identified in the TRM for TOE medical units.

Table 2. Funding requirements in the Training Resource Model for TOE medical units

| Unit Description | Medical Equipment Value / SRC | TRM Analysis / SRC | # of Units | TOTAL Property Value | TRM Funds Programmed | Average TRM Funds Programmed per Unit | % of Property Value Invested in Up-Keep |
|------------------------------|-------------------------------|--------------------|------------|----------------------|----------------------|---------------------------------------|---|
| Divisional Medical Companies | \$496,511 | \$8,006 | 29 | \$13,798,389 | \$232,093 | \$8,003 | 1.68% |
| Miscellaneous Support Units | \$210,854 | \$690 | 98 | \$22,506,442 | \$164,274 | \$1,676 | 0.73% |
| Dental | \$777,347 | \$5,888 | 10 | \$8,187,988 | \$63,134 | \$6,313 | 0.77% |
| Combat Support Hospital | \$4,700,736 | \$0 | 9 | \$42,602,615 | \$0 | \$0 | 0.00% |
| | | | | \$87,095,434 | \$459,501 | \$15,993 | 0.58% |

Note: The lack of funding associated with the CSH is very significant. It was FORSCOM’s intent to fund the HOSP initiative with TRM dollars.

Sample Data Collection Monthly Report May 2003



**Submitted to:
U.S. Army Medical Materiel Agency
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland**



Prepared by:
Information Systems Support Inc.
Robert Zak MS
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Report # 016

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Introduction: The U.S. Army Medical Material Agency (USAMMA) serves as the Army Medical Department's (AMEDD) strategic level medical logistics organization. USAMMA's mission is to enhance the medical material readiness throughout the full range of military health service support missions worldwide. In this role USAMMA develops and implements innovative logistics concepts and technologies as well as promoting military and medical logistics information and knowledge.

The agency's core skills and technologies center on conducting life cycle management for commercial and non-developmental items, sustaining and modernizing the medical force, supporting exercises and contingency operations and disseminating medical logistics information and knowledge. Two of USAMMA's critical groups tasked with this mission are the Maintenance Engineering Operations Directorate (MEOD) and the Technology Support Division (TSD). The MEOD is responsible for the maintenance of all the medical equipment while the TSD is responsible for ensuring the medical technology is sustainable and meets current and future utilization requirements.

In order to enhance the strengths of MEOD and TSD, USAMMA has contracted, (contract # DAMD17-01-D-0004), with McAdams Technologies Inc., (subcontracted to Information Systems Support Inc. March 2001), to develop and implement a sample data collection program for targeted medical devices. The overall focus of this program is to assist USAMMA in supplying medical field equipment, and DEPMEDS facilities with current, and sustainable medical technology in a fiscally efficient manner.

Scope: This document, the sixteenth Sample Data Collection (SDC) report, includes information obtained during an SDC survey and technology assessment of the 106th Medical Detachment (Veterinary Services) and 129th Medical Detachment (Veterinary Medicine), Yongsan Army Garrison, Seoul, South Korea. Also included is a report on an assessment of the medical equipment deficiencies reported by the Medical Logistics Support Team (MLST) as a result of the hand-off of the Pre-Positioned Afloat (Gibson) Combat Support Hospital.

Technology Support Issues

The following equipment and technology issues were addressed during May.

Report on Visit to 106th Medical Detachment (Veterinary Services)

SUBJECT: Trip Report for SDC Visit to 106th Medical Detachment (Veterinary Services), Yongsan Army Garrison, Seoul, Korea. 18-23 May, 2003.

**UNITED STATES ARMY MEDICAL MATERIEL AGENCY
SAMPLE DATA COLLECTION
106th MEDICAL DETACHMENT (VETERINARY SERVICES)
129th MEDICAL DETACHMENT (VETERINARY MEDICINE)**

SUMMARY: The 106th Medical Detachment (VS), Yongsan Army Garrison, Korea, requested a Sample Data Collection (SDC) survey by the United States Army Medical Materiel Agency (USAMMA) from 19 May to 23 May 2003. The purpose of the visit was to assess the current conditions of the equipment, evaluate life of technology, determine its effective utilization, and collect information on equipment performance and what equipment should be included to improve the Unit Assemblages (UAs).

During the visit, the following individuals were interviewed:

Colonel Dewayne Taylor, Commander, 106th Medical Detachment (VS)
Major Randall Thompson, Commander, 129th Medical Detachment (VM)
Major Heather Serwon, OIC Veterinary Clinic
SFC Albert Coates, Detachment Sergeant
SGT Elizabeth Hensley, NCOIC Veterinary Clinic

ISSUE:

Field anesthesia unit, 885 A (see Figure 1), is too heavy and cumbersome to set up. Also, it was developed for use on humans so must be adapted for veterinary use. The vaporizer, which is not anesthetic agent specific, is adequate although it requires roughly 5 bottles of anesthetic agent to just reach the lowest fill line of the vaporizer. It also doesn't work well if the ambient temperature is too hot or cold. The detachment has no environmental control units (ECU) but cannot use the fuel heaters during surgery. Currently, the veterinarians are familiar with and use isoflurane as their anesthetizing agent. Sevoflurane is also a possible future anesthetizing agent in the veterinary field. A lighter, more mobile, veterinary-specific unit might be a better fit.



Figure 1. 885A Field Anesthesia Unit



Figure 2. VMC Anesthesia Machine

RECOMMENDATION:

Determine if an animal-specific anesthesia system may be more appropriate for deployment purposes. A smaller, simpler, lighter unit could possibly be easier to maintain and repair. Figure 2 is a picture of a veterinary-specific anesthesia unit with an isoflurane vaporizer.

ISSUE:

The tables included in the UA for field use are heavy with folding metal legs and a wood-core top covered in stainless steel. They perform double-duty as both exam and surgical tables. However, they are not long enough to properly position a military working dog for surgery. A recommendation from Detachment personnel was to look at using the stands currently used by the Forward Surgical Teams (FST). The FST stand would need two items to make it work better, a pressure washer to assist in cleaning the stretchers after each case and a V-shaped thoracic positioner. The positioner, an example is shown in Figure 3, would help support the canine properly during treatment. They are available in several sizes to accommodate different sizes of animals.

RECOMMENDATION:

Look into the feasibility of using the FST surgical stands in place of the exam tables currently being used.

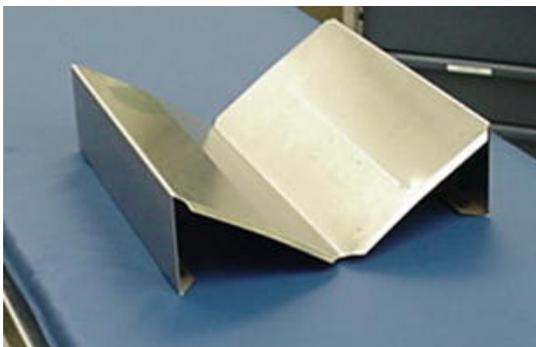


Figure 3. Thoracic positioner

ISSUE:

The portable kennels are too heavy and cumbersome so they are difficult to transport and set up. The detachment has reduced the number they deploy with from 10 to 4. The kennels also have lots of pinch points during the set up. Also, in cold weather, the cages are too cold to put the military working dogs in. There was a recommendation from the Commander of the 129th Medical Detachment to make the kennels chemically hardened.

RECOMMENDATION:

Identify portable kennels that are easier to set up and lighter to transport.

ISSUE:

Results from the Abaxis Piccolo portable blood analyzer, as shown in Figure 4, must be recalculated for use with dogs. The veterinary clinic takes care of animals other than dogs but the Piccolo can't do analysis of cats or other animal blood. Both IDEXX and Heska have veterinary specific blood analyzers. Abaxis does market a unit called a VetScan that is animal specific, shown in Figure 5. The Piccolo and VetScan are very similar internally so it appears possible to use the same repair parts on both. Differences are in the test rotors and the software programs.



Figure 4. Abaxis Piccolo



Figure 5. Abaxis VetScan

RECOMMENDATION:

Look into the feasibility of outfitting veterinary detachments with veterinary-specific equipment that is readily available.

ISSUE:

When ordering expendable supplies through Prime Vendor, there normally is a minimum order quantity. For the clinic, the minimum order quantity usually exceeds the needs of the detachment so there is a lot of waste when they expire.

RECOMMENDATION:

See if it's possible to get lower minimum order quantities through Prime Vendor sources or pool orders with other veterinary detachments, if feasible, to take advantage of Prime Vendor but not waste supplies.

ISSUE:

The clinic has experienced receiving substitutions of human medications in place of the veterinary versions they ordered. Usually the dosage is twice as strong in animals but when substituted, usually the substitute is only half the required dosage, which is not a good practice.

RECOMMENDATION:

Determine how to requisition medications without substitution.

ISSUE:

There was a Bair Hugger Patient Warmer in the clinic but it is not a part of the TOE unit. There is no way to maintain a dog's body temperature so the Bair Hugger would be a welcomed addition. There are approximately 10 different sizes of blankets available for use with the Bair Hugger so a suitable size for use with animals should be available. There was also a Gaymar water-heating blanket in their inventory. UAs 1901, 1905, and 1912 all have a need for a patient warming device. Figure 6 is a picture of the Bair Hugger the detachment has on hand.



Figure 6. Bair Hugger Patient Warmer

ISSUE:

The Microhematocrit reader, 6640-00-585-1378 is a large, bulky metal wheel that costs \$85.00 each. There is a card-type hematocrit tube reader through J. A. Webster, P/N 210175, NSN 6640-01-484-2031, which would be easier to carry and costs only \$9.95 each. It can be used for reading any 75mm capillary tube. If the capillary tubes can be standardized to the 75mm size, this can potentially be a suitable substitute.

RECOMMENDATION:

The capillary tubes in two of the veterinary UAs (1901 and 1905) are the 75mm version. If this capillary tube size is the standard, replace the universal reader with the card-type reader. This would be both a cost and weight reduction.

ISSUE:

There appears to be a very limited need for the food inspection kits for meat slaughtered in the local area. Although food for our soldiers may be shipped in, a comment was made that these kits would still be necessary in the event of humanitarian missions, although the number of kits required may be able to be reduced.

RECOMMENDATION:

Have next veterinary review board determine the need for the current allowance and makeup of the food inspection sets for inspecting in-country slaughtered meat. One reserve detachment had an allowance for six sets (one for each squadron) but they were never used during their deployment.

ISSUE:

Thermopol solid-state refrigerators, as show in Figure 7, have too small of a capacity for vaccines. They are also too expensive to replace for their size. The detachment currently has three broken units that cost \$12,000 each but the detachment doesn't have funding to replace them.



Figure 7. Thermopol Solid-State Refrigerator

RECOMMENDATION:

The detachment needs more traditional refrigerators with more storage capacity than the Thermopol units provide.

ISSUE:

Current illumination in tents not sufficient. Would like Bruce light sets for illumination. The inclusion of five sets of the lights will provide enough lighting for up to 10 tents. Figure 8 shows one set of lights

RECOMMENDATION:

Investigate adding lights to augment current tent lighting.



Figure 8: Fluorescent light set

ISSUE:

There is an allowance for an electrosurgical unit (ESU) in the 1905 set but they don't have any on hand. The veterinary surgeon would like to have one available. Although scalpels work fine for cutting, the need for the ESU is in providing a method of hemostasis.

RECOMMENDATION:

Identify the shortage and order appropriate allowance.

ISSUE:

Animal fur clippers with an assortment of blade attachments is essential. However, the clippers that are supplied in the UA are not compatible with the blade sets in the UA. For this detachment, the clippers had a tongue-type interface while the blade sets are screw-on, rendering them unusable.

RECOMMENDATION:

Physically inspect the clippers and blade attachments procured for the UA. Match them up with their essential characteristics. Check to see if they fit or not. Make changes to the ordering process to insure proper blade attachments are purchased.

ISSUE:

The MDT Castle sterilizer in the clinic breaks all the time and the capacity is too small for large packs. A suggested replacement for the Castle sterilizer is Tuttnauer Electronic Autoclave with a 10" x 18.7" chamber size. Part number is 2540EA with NSN 6530-01-501-1012. The chamber is larger than the existing so it could accommodate larger instruments common to veterinary detachments.

RECOMMENDATION:

Recommend purchasing a standardized replacement sterilizer such as the Harvey model MC8, NSN 6530-01-431-6564 or MC10, NSN 6530-01-434-3273.

ISSUE:

There was a concern from the detachment that there seems to be a lot of redundancy in the various UAs. Each UA includes instruments and supplies so it can stand alone to do its intended job. However, when several UAs are assigned to a detachment, there is a lot of unnecessary redundancy so the detachment has to either carry the excess items with them or take the time to sort through the inventory and omit the redundancy.

RECOMMENDATION:

Review which UAs are most commonly fielded together, determine the redundancy in equipment and instruments, and decide if the redundancy can be reduced in future sets.

ISSUE:

The commander of the 106th Medical Detachment (VS) said their allowance for two (2) 10kW generators is too much power. The detachment seldom sets up the whole assemblage and one generator is plenty for their needs. If the generators are the detachment's only power production in the field, the redundant power source is necessary should one require maintenance. However, if the current generator were too large for the actual need, smaller capacity generators would make future deployments easier while still meeting their needs.

RECOMMENDATION:

Determine if current generator size is still valid. Smaller generators may be the solution but may not be feasible once maintenance and repair and standardization is taken into account. Although current missions haven't required the deployment of full assemblages, that doesn't mean future missions won't.

ISSUE:

Due to the lack of an environmental control unit (ECU), the Detachment is unable to provide heat when oxygen is in use so surgical procedures in cold weather is difficult. The detachment has fuel-fired boilers that cannot be operated when oxygen is in use.

RECOMMENDATION:

Provide capability for heating an oxygen-enriched environment (without an open flame). The commander of the detachment recommended a DRASH unit would be a useful addition to the veterinary detachment. Figure 9 shows one configuration.



Figure 9. DRASH ECU, Generator and Trailer

ISSUE:

The detachment had 6 general purpose medium and 1 general purpose small tents. These are being changed to 8 RFAB units but the detachment feels it more accurately requires 15. In the current configuration, there is no place to recover patients and no place for staff to eat meals.

RECOMMENDATION:

Review shelter requirements of the veterinary detachments to determine if necessary functions were overlooked or were supposed to be covered by other means that didn't materialize.

ISSUE:

There appear to be two potential human factor flaws with the Air Force stretcher. The distance from the poles to the ground is too close. The skids on the bottom of the stretcher are shorter than the canvas stretcher so, in a low crawl, it puts more pressure on the arm. It's also tougher to set up than the canvas stretcher especially if you are trying to open it while lying down.

RECOMMENDATION:

This should be reviewed by the next veterinary review panel for human factors issues and impact on the mission.

ISSUE:

Although the Otoscope and Ophthalmoscope set with rechargeable batteries, as shown in Figure 10 functions fine, the set requires a selection of veterinary-specific ear specula because the ear canal of a dog is longer than in humans.



Figure 10. Otoscope and Ophthalmoscope Set

RECOMMENDATION:

Include a variety of animal-specific ear specula with the otoscopes.

ISSUE:

There is an ever-increasing amount of medical reference material made available on either compact disk (CD) or through the Internet. Having this information available would lower the shipping requirements since hardcopies of medical reference books wouldn't have to be shipped with the detachments.

RECOMMENDATION:

Include an allowance for a computer with CD-ROM reading capability and a printer for each squad.

ISSUE:

Telemedicine is desired in order to collaborate with other veterinarians on proper diagnoses and procedures.

RECOMMENDATION:

Determine the feasibility of including telemedicine capabilities in veterinary detachments.

ISSUE:

There was an authorization for a vacuum cleaner but there was none on hand. There is a need for a wet/dry vacuum in the detachment for cleaning up the operating area after a case.

RECOMMENDATION:

Identify shortages and order.

ISSUE:

When using a blood hemocytometer, there is no way to do a complete blood count (CBC). The A^CT 10 by Beckman Coulter is the hematology analyzer being fielded however; it does not do veterinary applications.

RECOMMENDATION:

Determine a suitable hematology analyzer that can perform a CBC in veterinary applications.

ISSUE:

The ProPaq 206EL with pulse oximetry is an appropriate vital signs monitor but it requires pediatric blood pressure cuffs for the dogs rather than the adult size. Also, EKG leads should be universal EKG leads with esophageal probe for monitoring dogs under anesthesia. Figure 11 is a picture of a Propaq 206 EL. Welch Allyn does not make an esophageal probe. If an esophageal probe is a requirement, another brand of vital signs monitor having this option would have to be procured.



Figure 11. Propaq Vital Signs Monitor

RECOMMENDATION:

Order child size, Non-Invasive Blood Pressure (NIBP) cuffs with a part number of 008-0011-98, NSN 6515-01-418-6938.

ISSUE:

An esophageal stethoscope should be part of a veterinary UA. A suggested item is the monaural esophageal stethoscope with rubber earpiece. They are available in two sizes. J A Webster Part Number 8132 is for a 12Fr x 42" size at a cost of \$32.45 each or Part Number 8134 for the 18Fr x 42" size at a cost of \$32.45 each.

RECOMMENDATION:

During next review determine if an esophageal stethoscope should be included as a part of a veterinary set.

FOR INFORMATION ONLY:

The detachment is in the process of turning in their daylight darkroom and Porta-Ray portable x-ray unit. They have a Min X-ray system as a replacement for the Porta-Ray and it is functioning fine as well as an OREX CR reader in place of wet film processing.

FOR INFORMATION ONLY:

The question was asked whether a Veterinary Detachment could be co-located with a CSH or some other TOE unit rather than be located on its own.

FOR INFORMATION ONLY:

The oxygen concentrators from the Airsep Corporation work well and are a welcomed piece of equipment.

FOR INFORMATION ONLY:

Detachment members stated funding not adequate to maintain all potency and dated items (Ps and Ds) of the Class 8 drugs.

MEOD Issues

The following maintenance issues were addressed during May.

Maintenance Sustainment Equipment Failure Rates

An assessment of the medical equipment deficiencies reported by the Medical Logistics Support Team (MLST) as a result of the hand-off of the Pre-positioned Afloat (Gibson) CSH revealed that there may be systemic problems with specific types of equipment. Table 1 depicts the types and quantities of medical equipment items that were identified as Non-Mission Capable (NMC). Additionally the failure rate identifies the proportion of the equipment that was NMC.

Table 1. List of Non-Mission Capable (NMC) Medical Equipment

| NSN | Nomenclature | Model | Manufacturer | Qty of Failed Items | Failure Rate |
|---------------|--|---------------------|------------------------|---------------------|--------------|
| 6640012580006 | SHAKING MACHINE LABORATORY | G560 VORTEX GENIE 2 | SCIENTIFIC INDUSTRIES | 3 | 100.0% |
| 6530012544135 | CLEANER ULTRASONIC 18GAL | MSC-900T | SONICOR INSTRUMENT | 3 | 75.0% |
| 6520013335961 | DENTAL OPERATING AND TREATMENT UNIT | 030657 (FUS 366) | DEFIANCE ELECTRONICS | 2 | 66.7% |
| 6520011256618 | TESTER PULP DENTAL DC DIGITAL READOUT | PT# 29023 | KERR CORPORATION | 1 | 50.0% |
| 6520001817349 | CHAIR AND STOOL UNIT: DENTAL OPERATING | CM-185 | DEN-TAL-EZ | 1 | 33.3% |
| 6515014341999 | BLOOD FLUID WARMER & PRESSURE INFUSION | SYSTEM 1000 | QUALITY FOAM DESIGNS | 2 | 25.0% |
| 6640014462597 | INCUBATOR BIOLOGICAL | VERIFY | STERIS | 1 | 25.0% |
| 6530014640267 | VENTILATOR VOLUME PTBL | 754M | IMPACT INSTRUMENTATION | 12 | 23.1% |
| 6515014571840 | ANESTHESIA APPARATUS | NARKOMED M | DRAEGER MEDICAL | 1 | 12.5% |
| 6515014322707 | MONITOR PATIENT VITAL | 206EL W/SP02 | WELCH ALLYN PROTOCOL | 8 | 11.1% |
| 6515014466766 | OXIMETER PULSE | BCI 3303 | SIMS BCI | 1 | 4.5% |
| 6520001391246 | COMPRESSOR - DEHYDRATOR DENTAL | M5B | AIR TECHNIQUES | 1 | 3.6% |
| 6515012861010 | LARYNGOSCOPE SET, FIBER OPTIC | 199176 | PROPPER MFG CO | 1 | 2.6% |
| 6515014350050 | SUCTION APPARATUS SURG PROGRAMMABLE | 326/M | IMPACT | 2 | 2.2% |

Ten of the fourteen types of medical equipment with identified defects or malfunctions had a failure rate in excess of ten percent. These types of equipment with excessive failure rates should be further analyzed to determine if these deficiencies are a result of inadequate environmentally controlled storage conditions, poor manufacturing, or anticipate failure based on the equipment type or category.

Sample Data Collection Monthly Report June 2003



**Submitted to:
U.S. Army Medical Materiel Agency
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland**



Prepared by:
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Report # 017

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Introduction: The U.S. Army Medical Material Agency (USAMMA) serves as the Army Medical Department's (AMEDD) strategic level medical logistics organization. USAMMA's mission is to enhance the medical material readiness throughout the full range of military health service support missions worldwide. In this role USAMMA develops and implements innovative logistics concepts and technologies as well as promoting military and medical logistics information and knowledge.

The agency's core skills and technologies center on conducting life cycle management for commercial and non-developmental items, sustaining and modernizing the medical force, supporting exercises and contingency operations and disseminating medical logistics information and knowledge. Two of USAMMA's critical groups tasked with this mission are the Maintenance Engineering Operations Directorate (MEOD) and the Technology Support Division (TSD). The MEOD is responsible for the maintenance of all the medical equipment while the TSD is responsible for ensuring the medical technology is sustainable and meets current and future utilization requirements.

In order to enhance the strengths of MEOD and TSD, USAMMA has contracted, (contract # DAMD17-01-D-0004), with McAdams Technologies Inc., (subcontracted to Information Systems Support Inc. March 2001), to develop and implement a sample data collection program for targeted medical devices. The overall focus of this program is to assist USAMMA in supplying medical field equipment, and DEPMEDS facilities with current, and sustainable medical technology in a fiscally efficient manner.

Scope: This document, the seventeenth Sample Data Collection (SDC) report, includes current information on a number of equipment items required to fill mission requirements. Also included is a review of maintenance significant medical equipment as well as medical maintenance manpower requirements for support of Set-the-Force agenda.

Technology Support Issues

The following equipment and technology issues were addressed during June.

Cooper Surgical, Medasonics, Part Number 101-0011-030, Versatone Model 8B Perioperative Doppler System, NSN 6515-01-293-5578

A requirement existed for perioperative dopplers. However, there was some confusion of what was included with the NSN when ordered and what, if other, accessories may have to be ordered for it to function properly. A Cooper Surgical representative acknowledged the unit, as ordered, required one of four optional probes to function properly. The type of probe required depended on its use. The manufacturer's representative looked at the previous year's worth of military-specific orders and found all of the doppler units were ordered with the P82, 8 Megahertz pencil-style probe. Figure 1 is a picture of the unit while Figures 2 through 5 show the available probes.



Fig. 1. Versatone Model 8B Perioperative Doppler



Fig. 2. 8 Megahertz P82 Pencil Style Probe



Figure 3. 2.4 Megahertz P81 Probe



Figure 4. 8 Megahertz P83 2.5cm pencil



Figure 5. 5.3 Megahertz P84 Probe

The MedaSonics® Versatone® Perioperative Doppler is a standard for many surgical suites.

- Detect air emboli during surgery where significant gravitation gradient exists between the heart and the operating site.
- Assess vessel patency or monitor and evaluate blood flow at surgical site.
- Obtain systolic blood pressure measurements during surgery.
- Flexible design allows for one Doppler and multiple probe frequencies.

Table 1. Ordering information for the ultrasonic doppler and probe options

| Nomenclature | Manufacturer | Model | NSN | Price |
|-------------------------|----------------|-----------------------------|------------------|-----------|
| Ultrasonic Doppler | CooperSurgical | 101-0011-030 (Model D8) | 6515-01-293-5578 | \$2995.00 |
| 8MHz Pencil Style Probe | CooperSurgical | 101-0013-010 (Model P82) | 6515-01-491-6202 | \$1095.00 |
| 2.4 MHz Probe | CooperSurgical | 101-0012-010 (Model P81) | None assigned | \$1295.00 |
| 8 MHz 2.5 cm Probe | CooperSurgical | 101-0014-010 (Model P83) | None assigned | \$1095.00 |
| 5.3 MHz probe | CooperSurgical | 101-0015-010 (Model P84) | None assigned | \$1095.00 |

Olympus America, Model OSF-3, Flexible Fiberoptic Sigmoidoscope, NSN 6515-01-504-1096



A requirement for a flexible sigmoidoscope identified the Olympus America model OSF-3 as a current and available item. It's used for endoscopy and endoscopic surgery in the lower digestive tract, including the rectum and sigmoid colon. The OSF-3 has a slim distal end to ease insertion. It has the following features, 700mm working length facilitates complete insertion, generous 3.2mm instrument channel accommodates a wide variety of accessories, increased resolution delivers clear images, complete immersion allows for complete cleaning and disinfecting, optional adapter will provide CO2 compatibility.

Fig. 6. Olympus Flexible Sigmoidoscope

Marvel Scientific, Part Number 61RF0600 (6CRF0600), Refrigerator-Freezer, NSN 4110-01-425-8009

A requirement for a refrigerator/freezer can be filled by the Marvel Scientific model 6CRF0600 refrigerator/freezer. It has a six cubic foot under counter refrigerator/freezer that fits easily under lab benches and casework. Forced air ventilation eliminates need for clearance space in built-in applications. The unit has manual defrost, 5.3 cubic foot refrigerator capacity and .7 cubic foot freezer capacity. Dual voltage capable, carrying handles and olive drab paint scheme. Figure 7 is the commercial version of the refrigerator.

Fig. 7. Marvel model 6CRF Refrigerator/Freezer

Synthes, Part Number 115.04, Instrument and Implant Set, Mini Fragment, Orthopedic Set, NSN 6515-01-384-9030

Orthopedic mini-fragmentation instrument and implant set. Basic set for low contact-dynamic compression plate (LC-DCP) and dynamic compression plate (DCP) surgery. Table 2 lists the parts making up the set.

Table 2. Basic instrument set for LC-DCP and DCP procedures, P/N 115.04

| Basic Instrument Set for LC-DCP and DCP Part Number 115.04 | | | | | | |
|---|---|-----|-----|------|-------------|-----------------|
| Part | Component | Qty | U/M | Note | Unit Amount | Extended Amount |
| 292.20 | 2.0MM KIRSCHNER WIRE W/TROCAR POINT 150MM | 1 | TP | P | 59.00 | 59.00 |
| 304.000 | BASIC INSTRUMENT SET F/LC-DCP & DCP GRAPHIC CASE | 1 | EA | * | 562.00 | 562.00 |
| 310.19 | 2.0MM DRILL BIT/QC/100MM | 2 | EA | | 46.50 | 93.00 |
| 310.31 | 3.2MM DRILL BIT/QC/145MM | 3 | EA | * | 46.25 | 138.75 |
| 310.44 | 4.5MM DRILL BIT/QC/145MM | 2 | EA | | 46.25 | 92.50 |
| 310.99 | COUNTERSINK FOR 4.5MM CORTEX SCREWS | 1 | EA | | 144.00 | 144.00 |
| 311.44 | T-HANDLE WITH QUICK COUPLING | 1 | EA | * | 218.00 | 218.00 |
| 311.46 | TAP FOR 4.5MM CORTEX/SHAFT SCREWS 130MM/57MM TAP DEPTH | 3 | EA | * | 76.50 | 229.50 |
| 311.66 | TAP FOR 6.5MM CANCELLOUS BONE SCREWS 197MM/150MM CALIBRATION | 1 | EA | | 160.00 | 160.00 |
| 312.46 | 4.5MM/3.2MM DOUBLE DRILL SLEEVE | 1 | EA | * | 241.00 | 241.00 |
| 312.48 | 4.5MM/3.2MM INSERT DRILL SLEEVE | 1 | EA | * | 82.00 | 82.00 |
| 312.67 | 6.5MM/3.2MM DOUBLE DRILL SLEEVE | 1 | EA | * | 241.00 | 241.00 |
| 314.11 | HOLDING SLEEVE | 1 | EA | | 229.00 | 229.00 |
| 314.15 | LARGE HEXAGONAL SCREWDRIVER SHAFT | 1 | EA | | 37.75 | 37.75 |
| 314.27 | LARGE HEXAGONAL SCREWDRIVER | 1 | EA | * | 147.00 | 147.00 |
| 319.10 | DEPTH GAUGE FOR LARGE SCREWS | 1 | EA | * | 415.00 | 415.00 |
| 319.39 | SHARP HOOK | 1 | EA | | 58.00 | 58.00 |
| 321.12 | ARTICULATED TENSION DEVICE WITH GAUGE- SPAN 20MM | 1 | EA | | 538.00 | 538.00 |
| 321.15 | SOCKET WRENCH-11MM WIDTH ACROSS FLATS | 1 | EA | | 254.00 | 254.00 |
| 321.16 | COMBINATION WRENCH-11MM WIDTH ACROSS FLATS | 1 | EA | | 195.00 | 195.00 |
| 322.44 | 4.5MM DCP - DRILL GUIDE NEUTRAL & LOAD | 1 | EA | * | 410.00 | 410.00 |
| 323.45 | 4.5MM LC-DCP - DRILL GUIDE NEUTRAL & LOAD | 1 | EA | * | 407.00 | 407.00 |
| 323.46 | 4.5MM UNIVERSAL DRILL GUIDE | 1 | EA | | 294.00 | 294.00 |

| | | | | | | | |
|--------|---|---|----|---|--|-------|-------|
| 329.92 | BENDING TEMPLATE 12 HOLES FOR 4.5MM LC-DCP- & DCP- PLATES | 1 | EA | | | 23.00 | 23.00 |
| 329.97 | BENDING TEMPLATE 7 HOLES FOR 4.5MM LC-DCP- & DCP- PLATES | 1 | EA | | | 23.00 | 23.00 |
| 329.99 | BENDING TEMPLATE 9 HOLES FOR 4.5MM LC-DCP- & DCP- PLATES | 1 | EA | | | 23.00 | 23.00 |
| 492.20 | 2.0MM TI KIRSCHNER WIRE 150MM | 1 | TP | P | | 68.00 | 68.00 |

Synthes, Part Number 115.96C, (Discontinued and replaced by P/N 115.720) Large External Fixator Set with Self Drilling Schanz Screws, NSN of discontinued part number is 6515-01-424-6249

A requirement to purchase a large external fixator set with self drilling Schanz screws identified the original requirement, Synthes part number 115.96C, has been discontinued and replaced by part number 115.720. The set consists of the following components shown in Table 3.

Table 3. Large external fixator set with self-drilling Schanz screws, P/N 115.720

| Large External Fixator Set with Self-Drilling Schanz Screws Set Part Number 115.720 | | | | | | | |
|--|--|-----|-----|------|-------------|-----------------|--|
| Part | Component | Qty | U/M | Note | Unit Amount | Extended Amount | |
| 293.74 | 5.0MM STEINMANN PIN WITH CENTRAL THREAD 200MM | 4 | EA | P | 85.00 | 340.00 | |
| 294.56 | 5.0MM SCHANZ SCREW BLUNTED TROCER POINT 200MM | 8 | EA | P | 66.50 | 532.00 | |
| 294.784 | 5.0MM SELF-DRILLING SCHANZ SCREW 60MM THRD/150MM | 4 | EA | P | 108.00 | 432.00 | |
| 294.785 | 5.0MM SELF-DRILLING SCHANZ SCREW 60MM THRD/175MM | 8 | EA | P | 108.00 | 864.00 | |
| 294.786 | 5.0MM SELF-DRILLING SCHANZ SCREW 80MM THRD/200MM | 8 | EA | P | 108.00 | 864.00 | |
| 294.950 | 6.0MM TRANSFIXATION PIN 225MM | 4 | EA | P | 86.00 | 344.00 | |
| 310.37 | 3.5MM DRILL BIT/QC/195MM | 2 | EA | | 78.50 | 157.00 | |
| 310.48 | 4.5MM DRILL BIT/QC/195MM | 2 | EA | | 78.00 | 156.00 | |
| 321.20 | RATCHET WRENCH-11MM WIDTH ACROSS FLATS | 2 | EA | * | 530.00 | 1,060.00 | |
| 355.14 | CANNULATED SOCKET WRENCH- 11MM WIDTH ACROSS FLATS | 1 | EA | | 217.00 | 217.00 | |
| 392.951 | 8.0MM/6.0MM THREADED DRILL SLEEVE-SHORT | 1 | EA | | 73.50 | 73.50 | |
| 392.952 | 8.0MM/6.0MM THREADED DRILL SLEEVE-LONG | 1 | EA | | 81.50 | 81.50 | |
| 392.963 | 6-POSITION DRILL GUIDE HANDLE | 1 | EA | | 169.00 | 169.00 | |
| 393.10 | UNIVERSAL CHUCK WITH T-HANDLE | 1 | EA | * | 697.00 | 697.00 | |
| 393.361 | TI TUBE-TO-TUBE CLAMP | 2 | EA | P | 507.00 | 1,014.00 | |
| 393.647 | COMBINATION CLAMP | 12 | EA | P | 499.00 | 5,988.00 | |
| 393.648 | DYNAMIZATION CLIP FOR COMBINATION CLAMP | 4 | EA | P | 69.50 | 278.00 | |
| 393.66 | TRANSVERSE CLAMP | 2 | EA | P | 507.00 | 1,014.00 | |
| 393.746 | SPLIT TISSUE PROTECTION SLEEVE 5.0MM | 1 | EA | | 382.00 | 382.00 | |
| 393.751 | MULTI-PIN CLAMP | 4 | EA | P | 564.00 | 2,256.00 | |
| 393.753 | ROD ATTACHMENT FOR MULTI-PIN CLAMP | 6 | EA | P | 303.00 | 1,818.00 | |
| 393.755 | MULTI-PIN CLAMP 4 POSITION | 2 | EA | P | 526.00 | 1,052.00 | |
| 393.76 | OPEN COMPRESSOR | 2 | EA | | 355.00 | 710.00 | |
| 393.978 | OPEN ADJUSTABLE CLAMP | 8 | EA | P | 400.00 | 3,200.00 | |
| 394.181 | 3.5MM TROCER-SHORT | 1 | EA | | 59.50 | 59.50 | |
| 394.182 | 3.5MM TROCER-LONG | 1 | EA | | 59.50 | 59.50 | |
| 394.80 | 11.0MM CARBON FIBER ROD 100MM | 4 | EA | P | 166.00 | 664.00 | |
| 394.82 | 11.0MM CARBON FIBER ROD 150MM | 4 | EA | P | 166.00 | 664.00 | |
| 394.83 | 11.0MM CARBON FIBER ROD 200MM | 4 | EA | P | 166.00 | 664.00 | |
| 394.84 | 11.0MM CARBON FIBER ROD 250MM | 4 | EA | P | 179.00 | 716.00 | |
| 394.85 | 11.0MM CARBON FIBER ROD 300MM | 4 | EA | P | 179.00 | 716.00 | |
| 394.86 | 11.0MM CARBON FIBER ROD 350MM | 4 | EA | P | 179.00 | 716.00 | |
| 394.87 | 11.0MM CARBON FIBER ROD 400MM | 4 | EA | P | 195.00 | 780.00 | |
| 394.97 | PROTECTIVE CAPS FOR 11.0MM TUBES & CARBON FIBER RODS | 1 | TP | P | 11.00 | 11.00 | |
| 394.993 | PROTECTIVE CAPS FOR 5.0MM FIXATION PINS | 1 | TP | P | 24.00 | 24.00 | |
| 394.994 | PROTECTIVE CAPS FOR 6.0MM FIXATION PINS | 1 | TP | P | 24.00 | 24.00 | |
| 395.911 | DRILL SLEEVE HANDLE | 1 | EA | | 143.00 | 143.00 | |
| 395.912 | 5.0MM/3.5MM DRILL SLEEVE-SHORT | 1 | EA | | 72.00 | 72.00 | |
| 395.913 | 5.0MM/3.5MM DRILL SLEEVE-LONG | 1 | EA | | 72.00 | 72.00 | |
| 395.921 | 6.0MM/5.0MM THREADED DRILL SLEEVE-SHORT | 1 | EA | | 83.50 | 83.50 | |

| | | | | | | | |
|---------|--|---|----|--|---|--------|--------|
| 395.923 | 6.0MM/5.0MM THREADED DRILL SLEEVE-LONG | 1 | EA | | | 83.50 | 83.50 |
| 690.315 | LARGE EXTERNAL FIXATOR GRAPHIC CASE | 1 | EA | | * | 990.00 | 990.00 |

Welch Allyn, Part Number 35303, Proctosigmoidoscope, NSN 6515-01-481-0570



The requirement for a rigid sigmoidoscope can be met with the set from Welch Allyn, part number 35303. The rigid sigmoidoscopes come with halogen light for true tissue color and consistent, long-lasting illumination. Fiber optics provide a cool distal ring of light with no reflections, no obstructions. Made from autoclavable stainless steel for convenience and durability. Hinged window with a neoprene seal avoids fogging during insufflation. Graduated tube with removable tip for fiber cleaning. Compatible with available adapters to fit most Welch Allyn power handles. Key components are shown in Table 4.

Fig. 8. Proctosigmoidoscope Set

Table 4. Key components of Welch Allyn pr octosigmoidoscope

| |
|---|
| 15 mm x 15 cm Pediatric Speculum with Obturator |
| 19 mm x 25 cm Standard Sigmoidoscope, Speculum with Obturator |
| 23 mm x 7 cm Fiber Optic Anoscope, Speculum with Obturator |
| Lught Handle with 3 ft cord |
| Transformer with 5 foot cord |
| Insufflation bulb, complete |
| 6 volt Halogen bulb |
| 30 cm Suction Tube (Standard) |
| Hard Case for Sigmoidoscope Set |

Bay Medical, Part Number 8-1053-62, MicroStim PLUS Nerve Stimulator, NSN 6515-01-463-0901

The MicroStim PLUS is a complete muscle relaxant monitor that fits in the palm of your hand. Functions include twitch, 50 and 100 Hz tetanus, automatic train-of-four, and double-burst stimulation. Although small, this unit offers sufficient output to ensure supramaximal stimulation: output current is fully adjustable from 0 to 70 mA. Has an audible indicator that sounds as each stimulus pulse is delivered, enabling direct monitoring of the patient’s response. Unit comes complete and ready to use with instruction manual, battery, diagnostic probe, and 6-foot leads with alligator clips. Also included are a ball & hollow pin as well as a 6-foot lead.

Ortho-Clinical Diagnostics, a Johnson & Johnson Company, Catalog Number 813 2086, Vitros 250 Chemistry System, NSN 6630-01-441-5297

The following information was gathered on the Vitros 250 in regards to a specific request from an overseas unit. The VITROS 250 is a flexible system that can meet requirements in multiple environments - small hospitals, backup in large hospitals, clinics and satellite locations. With throughput of up to 250 results per hour, the VITROS 250 offers the same menu (except AcP), features and ease-of-use as the VITROS 950, with a smaller footprint. The VITROS 250 also features on-board dilution, and can be automated or placed in a work cell.



Fig. 9. Ortho Vitros 250 Chemistry System

The following are test types the system was designed for according to characteristics in the UDR: albumin, alcohol, ALKP, ALT, ammonia, amylase, AST, BUN, calcium, carbon dioxide, chloride, cholesterol, cholinesterase, CK, CKMB, conjugated bilirubin, creatinine, CSF glucose, CSF total protein, delta bilirubin, GGT, glucose, HDLC, iron, lactate, LDH, lipase, lithium, magnesium, phosphorus, potassium, salicylate, sodium, theophylline, TIBC, total bilirubin, total protein, triglycerides, unconjugated bilirubin, uric acid. The following were found in the special features section in the characteristics section of the UDR: multi-rate; end point analysis; direct ISE reading, ion specific; dry chemistry technology; immuno rate wash station ; electrolyte reference fluid reservoir; low volume application; new immuno rate assay capabilities: CRP, digoxin, Phenobarbital, phenyloin

Star Dental, Dental Sonic Scaler, current part number 63389 and swivel, part number 61547



Fig. 10. Titan SW Plus Scaler

The new Titan SW Plus (Swivel) scaler feature an improved ergonomic, scalloped handle complemented by a sleek, new look and finish. Available in 2/3 Line or 4-Line backend configurations, these portable air-powered sonic scalers are clinically proven to effectively remove hard calculus deposits and stains. Because the water spray is controlled, patients don't experience the "drowning effect" often associated with deep scaling.

Feature and Benefits

- One convenient scaler and five scaling tips efficiently achieve both sub-gingival and supra-gingival scaling.
- Controlled water spray provides fog-free view and eliminates "drowning."
- Controlled water spray eliminates patient "drowning effect" and provides a fog-free view.
- The Titan SW Plus and Titan Tips are autoclavable or chemiclavable up to 135°C.
- 360° Quick Connect Swivel on the Titan SW Plus reduces tubing drag, lessens hand/elbow strain and improves scaler manipulation.
- Ergonomic scalloped handle eliminates grooves where debris and bacteria are most often harbored, significantly reducing pre-sterilization scrubbing and cleaning preparation time.
- Titan SW Plus Scaler is completely portable and connects to existing air driven hand piece tubing. No extra control boxes or foot controls are necessary.

Fisher Scientific, Part Number 22-252-490 (Becton Dickinson, Clay Adams P/N 420630) Agglutination Viewer, NSN 6640-01-500-8779. Replaces Becton Dickinson, Clay Adams P/N 425384



Fig. 11. Agglutination Viewer

Use for blood typing, cross matching, prothrombin time, Kahn and other agglutinations, flocculation and serodiagnostic tests. Viewer provides a magnified view of the undersurface of test tube contents and permits an easier and more accurate reading than a magnifying lens. Test tube contents are illuminated from above by a 5-w bulb and from below by a magnifying mirror. Complete with bulb and magnifying mirror.

Olympus America, Model LF-2, Tracheal Intubation Fiberscope, NSN 6515-01-397-5258 and CLK-4 Light Source, NSN 6515-01-421-5794



Fig. 12. Olympus LF-2 Fiberscope



Fig. 13. Olympus CLK-4 Light Source

The LF-2 provides exceptional flexibility and maneuverability for a tracheal intubation fiberscope. The LF-2's insertion tube has a combination of flexibility and stiffness for easier insertion and navigation into the trachea and easier placement of endotracheal/endobronchial tubes. A large 1.5mm channel permits improved aspiration of secretions. Incorporating Olympus' advanced optics along with a 90° field of view, the LF-2 provides excellent image quality and visualization to make it easier for you to quickly and successfully perform flexible tracheal intubation.

Features:

- 830mm Total Length with 600mm Working Length
- 90° Field of View
- Direction of View 0° (Forward Viewing)
- 3-55 mm Depth of Field
- Illumination Method by Light Guide System
- 3.8mm Outer Diameter of Distal End
- 4.0mm Outer Diameter of Insertion Tube
- Range of Tip Bending is 120° Up and 120° Down
- 1.5mm Inner Diameter of Suction Channel

Medtronic, Single Chamber External Cardiac Pacemaker, Model 5348, NSN 6515-01-491-4633 (W), NSN 6515-01-463-0725 (L)

The model 5348 temporary pacemaker is designed to be used in conjunction with a cardiac pacing lead system for temporary single-chamber pacing in the clinical environment. There are no known contraindications to the use of temporary pacing as a means to control the heart rate. Model 5348 is designed to deliver high-rate therapy only in the AOO mode. Use in the ventricle could result in life-threatening arrhythmias such as ventricular tachycardia and ventricular fibrillation. A lead with extension cable constitutes a direct, low-resistance current path to the myocardium. During connection and testing procedures only battery-powered instrumentation should be used.



Fig. 14. Single-Chamber
Pacemaker Model 5348

In addition to the pacemaker, there is a need for a pacing lead that can be introduced into a patient in the field without the benefit of fluoroscopy. A balloon flow-assisted electrode catheter would will this requirement. However, Medtronic **does not** sell balloon flow-assisted bipolar electrode catheter. In conjunction with cardiac consultants, it was determined that a 4 French, bipolar electrode would be a good fit. A source for these temporary pacing electrodes is Bard Electrophysiology, whose part number is 008635P.

MEOD Issues

The following maintenance issues were addressed during June.

Maintenance Significant Medical Equipment Review

The Army Medical Department's (AMEDD) National Maintenance Point (NMP), together with the Army Medical Departments Center & School (AMEDD C&S) Medical Equipment Maintenance Representative, reviewed all medical equipment listed as components of Unit Assemblages (UA). The following listed items have been determined to be of significant importance that maintenance tracking requires an Operational Requirements Documents (ORD) be established and a Line Item Number (LIN) be assigned. The assignment of a LIN will enable the Army's maintenance automation systems to track and monitor maintenance related criteria; i.e. Mean Time To Failure, Mean Time To Repair, Medical Maintenance Man-hour requirements to effect scheduled and unscheduled maintenance services, and repair parts requirements over the life cycle of the equipment item (See Table 5).

Table 5. List of Maintenance Significant Medical Equipment

| NSN | NOMENCLATURE | ARC | PRICE | MRC |
|---------------|---|-----|-------------|-----|
| 6640014953965 | ANALYZER LIQUID SCINTILLATION 264V AC 75WATTS BENCH SPACE 9SQ FT | N | \$20,400.00 | F |
| 6680012755394 | ANEMOMETER AIR VELOCITY &TEMP FIELD CALIBRATABLE F/6680012769459 | N | \$1,396.55 | |
| 6515014536496 | ANESTHESIA APPARATUS PORTABLE LIGHTWEIGHT SOFT PACK STYLE | N | \$7,500.00 | O |
| 6515012065971 | ARTHROSCOPE SYSTEM SURGICAL 4MM ABLE TO WITHSTAND STERILIZATION | N | \$4,762.72 | O |
| 6515013765164 | ASPIRATION UNIT VITRECTOMY OPHTH BTRY PWR FOOTPEDAL AUTOCL PUMP | N | \$2,155.50 | O |
| 6670014770576 | BALANCE ANALYTICAL 210GRAMS ALUM AB-S SERIES BASIC LEVEL | N | \$3,430.00 | O |
| 6670014770614 | BALANCE ANALYTICAL 3.05 GRAMS WEIGH CAP MT-TETTLER | N | \$12,034.00 | O |
| 6540004941852 | BLOCKING UNIT OPHTHALMIC LENS | N | \$11,479.84 | O |
| 6515013705019 | BLOOD-FLUID WARMER & PRESSURE INFUSION SYSTEM 120V 50/60HZ | N | \$4,696.08 | F |
| 6515011737054 | BRONCHOSCOPE FIBEROPTIC: FLEXIBLE 5MM | N | \$9,169.92 | D |
| 6640014984194 | CABINET BIOLOGICAL SAFETY CRS 24"X46"X23.5" | N | \$3,723.00 | O |
| 6640014649936 | CALIBRATOR BIOS FLOW F/USE IN CALIBRATION OF AIR SAMPLING EQUIP | N | \$1,783.00 | O |
| 6640014954051 | CENTRIFUGE LABORATORY 8500RPM 50/60HZ 249V AC SINGLE PHASE | N | \$1,525.00 | O |
| 6640014644444 | CENTRIFUGE BENCHTOP REFRIGERATED MAX SPEED 17000 RPM | N | \$7,637.00 | O |
| 6640014990533 | CENTRIFUGE LAB 16800 RPM 60 HZ MULTIPURPOSE VENTILATED BENCH | N | \$5,050.00 | O |
| 6640012048691 | CENTRIFUGE LAB 3400RPM 110/220V 50/60HZ AC 150W 10IN H 8IN DIA | N | \$1,594.34 | O |
| 6640012052423 | CENTRIFUGE LAB GEN PURPOSE BENCH TOP 4000RPM 120/230V 50/60HZ AC | N | \$1,763.44 | O |
| 6640011432055 | CENTRIFUGE LAB ROTOR 3400 RPM 110/220V 50/60HZ 150W AC PORTABLE | N | \$947.06 | O |
| 6640011701180 | CENTRIFUGE LAB TRUNNION 6 PLACE 3000 RPM 110/220V 50/60HZ AC | N | \$1,319.70 | O |
| 6640014677234 | CENTRIFUGE LABORATORY 120V 60HZ SGL PHASE | N | \$6,000.00 | D |
| 6640009309034 | CENTRIFUGE LABORATORY 15ML TU 115V 650/60 HZ 12X13.5IN 135 WATTS | N | \$1,478.07 | O |
| 6640014470912 | CENTRIFUGE LABORATORY 6000 RPM 120V 60 HZ AC SINGLE PHASE | N | \$7,414.00 | O |
| 6640010986638 | CENTRIFUGE LABORATORY MICRO-HEMATOCRIT 115VOLT 50/60 HZ AC 10"W | N | \$917.00 | O |
| 6640010689612 | CENTRIFUGE LABORATORY MICROHEMATOCRIT BATTERY POWERED 9 VOLT DC | N | \$1,232.80 | O |
| 6640001451180 | CENTRIFUGE LABORATORY SMALL 115V 60HZ AC CONICAL SINGLE PHASE | N | \$1,493.82 | O |

| NSN | NOMENCLATURE | ARC | PRICE | MRC |
|---------------|--|-----|-------------|-----|
| 6525013456090 | CHAMBER X-RAY FILM PROCESSING DARKROOM PORTABLE | N | \$5,539.41 | H |
| 6540012028076 | CHILLING UNIT CYLINDER SURFACE OPHTHALMIC LENS 115V 60 HZ AC | N | \$2,415.60 | H |
| 6515014939691 | COAGULATION SYSTEM IRRIGATING BIPOLAR | N | \$18,067.00 | |
| 6515013831052 | CONCENTRATOR OXYGEN 1-5 LPM 115V 50/60HZ BUILT-IN ALARMS | N | \$1,111.68 | O |
| 6640014674853 | CONDENSER LAB EVAPORATION ADJ ROTATION SPEED(5-240RPM)20X15X24IN | N | \$3,730.00 | O |
| 6515014940271 | CONSOLE INTEGRAL IRRIGATION PUMP 115V E.I. 6515014654385 | N | \$4,500.00 | |
| 6515014989712 | CRANIAL PLATING SYS NEUROSURG 1.9MM BIOPLATE FIXATION | N | \$28,154.00 | |
| 6640014623358 | CRYOSTAT MICROTOME MICROM 505E CRYOSTAT W/202 MICROTOME | N | \$17,323.00 | O |
| 6525014266753 | CT AUTO INJECTOR SYSTEM | N | \$11,792.52 | O |
| 6515013723150 | CUTTER MEMBRANE PEELER SET 120/230V 50/60HZ AC 6X2.75X5.50" CASE | N | \$12,340.06 | F |
| 6515013041003 | CUTTER-VACUUM ORTHO CAST PORTABLE 120/230V 50/60HZ AC W/ELEC SAW | N | \$3,066.05 | O |
| 6525014341985 | DARKROOM X-RAY PORTABLE | N | \$8,685.00 | O |
| 6525013697178 | DARKROOM X-RAY PORTABLE: | N | \$8,685.00 | O |
| 6515013595395 | DEFIBRILLATOR/MONITOR RECORDER SYS 115/230V 50/60HZ AC/DC W/CASE | N | \$6,802.11 | H |
| 6515011828001 | DERMATOME BROWN DESIGN 120/230V 50/60HZ AC ELECTRIC TYPE W/CASE | N | \$3,759.57 | O |
| 6350014625530 | DETECTOR LIGHT INTENSITY BC418 PLASTIC SINTILLATION DETECTOR | N | \$6,929.00 | H |
| 6525014668870 | DIGITIZER LASER FILM IMPAX TS 5 TRANSMIT/PREVIEW STATION | N | \$43,307.50 | F |
| 6540002998108 | EDGER HAND OPERATED OPHTHALMIC LENS 115 VOLT 60 HZ AC | N | \$1,486.75 | O |
| 6515013141237 | ELECTROSURGICAL APPARATUS 120/230V 50/60HZ AC MOBILE SOLID STATE | N | \$3,830.68 | O |
| 6515001376511 | ELECTROSURGICAL APPARATUS PORTABLE TABLE TYPE 115/230V 50/60HZ | N | \$4,565.70 | O |
| 6515012045392 | ENDOSCOPIC INSTRUMENT FIBER OPTIC FLEXIBLE 115/230V 50/60HZ AC | N | \$6,281.60 | |
| 6515012045360 | ENDOSCOPIC INSTRUMENT FIBER OPTIC FLEXIBLE GASTRO-INTESTINAL | N | \$13,026.03 | D |
| 6515013975258 | FIBERSCOPE TRACHEAL INTUBATION W/LT 110/220V 50/60HZ 4MM OD830MM | N | \$6,500.00 | L |
| 6515014246249 | FIXATION EXTERNAL ORTHOPEDIC | N | \$16,196.71 | O |
| 6515012376085 | FIXATION KIT ORAL-MAXILLOFACIAL SURG UNIV OF TENNESSEE DSGN CRS | N | \$2,160.70 | B |
| 6515014287086 | FLUID TRANSFER SYSTEM OPHTHALMIC VITREORETINAL SURGERY | N | \$4,800.00 | O |
| 4110014249408 | FREEZER MECHANICAL BLOOD PLASMA 110/230 VOLTS 50/60 HZ 5.4 CU FT | N | \$7,385.72 | O |
| 4110014500060 | FREEZER MECHANICAL BLOOD PLASMA 24X25X36INCHES MINUS 30 DEG TEMP | N | \$7,385.72 | O |
| 4110014607404 | FREEZER MECHANICAL ULTRA LOW TEMP RANGE -40DEG TO -86DEG C | N | \$5,803.00 | O |
| 4110009123024 | FREEZER PORTABLE TOP LOADING 115V 60HZ AC | N | \$3,219.97 | O |
| 6520010898282 | FURNACE DENT LAB ELEC LG 0-1999 DEG F AUTO TEMP 115V 50-60 HZ | N | \$1,389.60 | O |
| 6520011399221 | FURNACE DENTAL LAB ELEC 300-2000 DEG F PORTABLE 120V 50/60HZ AC | N | \$745.54 | O |
| 6640014676210 | GENERATOR HYDROGEN OPER PRESSURE 100POUNDS P/SQ IN 200CC P/MIN | N | \$5,000.00 | H |
| 3655014676213 | GENERATOR NITROGEN 17X24.6X16" NOMINAL 110/220V 5AMPS | N | \$7,630.00 | H |
| 6540014139101 | GENERATOR OPHTHALMIC LENS SINGLE PHASE 50/60 HZ 115/230 1150W | N | \$40,000.00 | D |
| 6530012082408 | HEADREST NEUROSURGICAL SYSTEM ATTACH TO OPERATING TABLE W/BOARD | N | \$10,670.30 | O |
| 6640011397783 | HOOK LAMINAR FLOW LAB 34"L 59"W 31"H HORIZONTAL FLOW CLASS 100 | N | \$4,500.70 | O |
| 6515014650751 | IMAGE AND ILLUMINATION SYS DELIVERS CLEAR UNIFORM IMAGE | N | \$6,500.00 | O |

| NSN | NOMENCLATURE | ARC | PRICE | MRC |
|---------------|--|-----|-------------|-----|
| 6640011876621 | INCUBATOR BACTERIOLOGICAL CO2 DUAL CHAMBER 120/230V50/60HZ AC | N | \$7,787.96 | O |
| 6515013849030 | INSTRUMENT & IMPLANT SET MINI FRAG ORTHO BASIC LC-DCP AND DCP | N | \$4,062.87 | |
| 6515013856088 | INSTRUMENT & IMPLANT SET ORTHOPEDIC SURGERY | N | \$8,258.20 | |
| 6515011405432 | INSTRUMENT & IMPLANT ST ORTHO BASIC SM/LGE BONE FOR JACOBS CHUCK | N | \$1,618.68 | B |
| 6545011405431 | INSTRUMENT SET ASIF SMALL FRAGMENT AND MINI | N | \$9,131.96 | |
| 6515011668996 | INSTRUMENT SET INTRAOCULAR MICROSURGICAL SUTHERLAND ROTATABLE | N | \$3,562.01 | B |
| 6515011737027 | INSTRUMENT SET ORTHOPEDIC PASSIVATED AND HARDENED CRS WITH CASE | N | \$7,290.23 | |
| 6540001818037 | LENS MEASURING INSTRUMENT OPHTHALMIC 115 VOLT 60 HERTZ AC | N | \$1,099.02 | O |
| 6540002998134 | LENS MEASURING INSTRUMENT OPHTHALMIC 115 VOLT 60 HZ AC | N | \$3,358.35 | H |
| 6515014215793 | LENSOMETER OCULAR M | N | \$9,999.00 | H |
| 6515011727660 | LIGHT ENDOSCOPIC INSTR FIBER OPTIC 120/130V 50/60HZ AC 300WATT | N | \$5,594.18 | O |
| 6515011818711 | LIGHT ENDOSCOPIC INSTRUMENT 120/240V 50/60HZ PORTABLE FIBER | N | \$11,486.92 | O |
| 6540013660909 | LIGHT SLIT OPHTHALMIC HAND HELD 25W IN CASE 120/240V 50/60HZ | N | \$3,300.00 | F |
| 6540011790076 | LIGHT SLIT OPHTHALMOLOGICAL ADJUSTABLE 115/230V 50/60 HZ AC | N | \$7,887.98 | F |
| 6515013723149 | LIGHT SOURCE FILTERED 120/220V 50/60HZ AC HALOGEN 12X9X5" | N | \$6,884.70 | O |
| 6660014660958 | METEOROLOGICAL STATION AUTOMATIC SONIC WEATHER STATION | N | \$6,383.00 | O |
| 6625014498480 | METER NOISE LEVEL 2.75X7.6X1.0IN IMPULSE INTEGRATING SOUND LEVEL | N | \$1,477.73 | O |
| 6630012052380 | METER TITRATION CHLORIDE 115/230V 50/60HZ AC 50 WATTS 12X8.5X5IN | N | \$2,133.73 | O |
| 6640014630068 | MICROBIAL IDENTIFICATION SYSTEM AUTOSCAN 4 | N | \$53,965.00 | O |
| 6650014991784 | MICROSCOPE CLINICAL LABORATORY | N | \$5,117.00 | O |
| 6650012070829 | MICROSCOPE OPTICAL BINOCULAR HISTOPATHOLOGICAL & PATHOLOGICAL | N | \$7,234.12 | H |
| 6650012593008 | MICROSCOPE OPTICAL BIOLOGY BINOCULAR 110/220V 50/60HZ AC/BATTERY | N | \$1,976.40 | D |
| 6650010190423 | MICROSCOPE OPTICAL BIOLOGY GENERAL PURPOSE BINOCULAR INCLINED | N | \$10,760.98 | D |
| 6650009736945 | MICROSCOPE OPTICAL STEREOSCOPY 15&20 EYEPIECE MAGNIFICATION | N | \$1,934.72 | O |
| 6545009268961 | MICROSCOPE SET MED LAB EQUIPMENT SET LIGHTWEIGHT FIELD | D | \$4,307.91 | |
| 6515014586580 | MICROSCOPE SURGICAL | N | \$2,800.00 | |
| 6540014919995 | MICROSCOPE SURGICAL PORTABLE 37"LG 90/260V 47/440HZ | N | \$9,292.00 | O |
| 6515014603108 | MONITOR CARDIAC: | N | \$13,623.54 | O |
| 6515014942325 | MONITOR ICP EXPRESS DIGITAL INTRACRANIAL PRESSURE NUMERIC DISPLA | N | \$6,000.00 | |
| 6515014631775 | MONITOR INTRACRANIA MULTIPARAMETER W/WAVEFORM 110/220VAC50/60HZ | N | \$8,154.90 | O |
| 6515014584077 | MONITOR PATIENT VITAL SIGN PULSE OXIMETER 115V 60HZ | N | \$4,495.00 | O |
| 6665014498188 | MULTI-GAS DETECTOR MICROMAX PORTABLE SMALL SZ 4.75X3X1.8IN | N | \$1,670.00 | O |
| 6520012983831 | OPERATING AND TREATMENT UNIT DENTAL FIELD: | N | \$5,396.47 | O |
| 6515014681164 | ORTHOPEDIC SYSTEM SURGICAL ELECTRIC POWER | N | \$20,709.05 | O |
| 4430012657246 | OVEN,THERMAL DRYING,ELECTRIC | N | \$6,399.05 | |
| 6540008776464 | PHOROPTER MINUS CYLINDRICAL LENS TYPE | N | \$3,864.61 | O |
| 6665014498422 | PHOTOIONIZATION MONITOR 2020 MINIATURE | N | \$3,642.30 | O |

| NSN | NOMENCLATURE | ARC | PRICE | MRC |
|---------------|---|-----|-------------|-----|
| 6525004209588 | PROCESS MACHINE RAD FILM AUTO DENT 115V 50-60HZ AC OR230V50HZ AC | N | \$1,331.10 | O |
| 6525012164988 | PROCESSING MACH RAD FILM AUTOMATIC AC DEN 115/220V 23X15.188X12" | N | \$8,424.45 | O |
| 6525013456089 | PROCESSING MACHINE RADIOGRAPHIC FILM AUTOMATIC 120/240 60HZ 2.5 | N | \$5,050.80 | H |
| 6515013814456 | PUMP I.V. INFUSION VOLUMETRIC PRTBLE BRTY OPER RECHARGEABLE 6V | N | \$6,900.23 | F |
| 6515014854362 | PUMP INTRAVENOUS INFUSION 5"LG 4"W 2.2"HT POWER MINI RAPID IV | N | \$2,456.64 | O |
| 4110015060895 | REFRIGERATOR BLOOD COOLING & STORAGE FIELD ENVIRONMENT | N | \$4,800.00 | |
| 4110012042673 | REFRIGERATOR MECHANICAL BIOLOGICALS 110/220V 50/60 HZ | N | \$4,400.00 | O |
| 4110001764291 | REFRIGERATOR MECHANICAL BIOLOGICALS 115V 60HZ AC 35CU FT MAXIMUM | N | \$3,310.47 | H |
| 4110011790124 | REFRIGERATOR MECHANICAL BLOOD BANK 5.4CU FT 120/230V 50/60HZ AC | N | \$7,399.62 | F |
| 6515013435636 | RHINO-LARYNGOSCOPE FIBER OPTIC FLEX 255MM LG 3.4MM OD WITH CASE | N | \$5,001.30 | D |
| 6665014649567 | SCINTILLATOR PRESET BETA ISOTOPES TRIATHLER MULTILABEL TESTER | N | \$14,151.00 | O |
| 6540013759031 | STEREOSCOPE VISION TESTING NEAR DISTANT W/SLIDES 115V 60HZ AC | N | \$3,775.80 | H |
| 6640014674732 | STERILIZER LAB CRS 17X24X42IN 120V AC SELF CONTAINED & PORTABLE | N | \$10,571.00 | D |
| 6530013408001 | STERILIZER SURG INSTR DRESS AC 115 TO 230 V ELEC 14X23.5X19.25" | N | \$2,518.81 | |
| 6530011885294 | STERILIZER SURGICAL INSTRUMENT AND DRESSING 120/230V 1350W AC | N | \$4,549.20 | O |
| 6530011896960 | STERILIZER SURGICAL INSTRUMENT AND DRESSING 120/230V 15002 AC | N | \$4,101.02 | O |
| 6530011289481 | STERILIZER SURGICAL INSTRUMENT AND DRESSING 120V 1350 PRESS STM | N | \$1,773.48 | O |
| 6515014585969 | STETHOSCOPE ELECTRONIC PHONESTETH | N | \$6,100.00 | F |
| 6515012846779 | STIMULATOR ULTRASOUND HIGH GALVANIC 120/230V 50/60HZ 20W HVS500V | N | \$4,712.26 | D |
| 6515011677287 | SUCTION APPAR SURG 120/230V 50/60HZ MOBILE PROGRAMMABLE HIGH VOL | N | \$3,646.10 | F |
| 6515011806984 | SUCTION APPARATUS SURG 120/230V 50/60HZ AC BTRY/LINE OPER MOBILE | N | \$2,258.99 | O |
| 6515014609174 | SUCTION APPARATUS SURGICAL PROGRAMMABLE BATTERY 11-30 VOLTS | N | \$2,673.24 | O |
| 6515011774928 | SURGICAL KIT ORTHOPEDIC: BATTERY POWERED MULTIPURPOSE DRILL | N | \$10,759.26 | O |
| 6515014951668 | SURGICAL UNIT ARTHROSCOPIC INTRA-ARTICUL | N | \$10,334.99 | O |
| 6630014763178 | SYSTEM GAS CHROMATOGRAPH/MASS SPECTROMETER SYSTEM G202 | N | \$48,000.00 | O |
| 6640014617938 | THERMAL CYCLER W/O HEATER LID PROGRAMMABLE 96 WELLS 24X28X23CM | N | \$4,202.00 | O |
| 6530014876868 | THERMOREGULATOR PATIENT SUITABLE F/HOSPITAL ENVIRONMENT | N | \$7,260.07 | H |
| 6640011772647 | TISSUE EMBEDDING SYSTEM: | N | \$7,529.27 | H |
| 6515012870607 | TOURNIQUET SYSTEM PNEUMATIC AUTO 110/220V 50/60HZ AC WITH CASE | N | \$6,478.20 | O |
| 6530011760703 | TRACTION APPARATUS PHYSICAL THERAPY PORTABLE 120/230V 50/60HZ AC | N | \$3,603.30 | O |
| 6530012525591 | TURNING FRAME ORTHO MOBILE SGL UNIT TURNING FRAME W/CART ASSY | N | \$7,301.95 | O |
| 6530009261975 | TURNING FRAME ORTHOPEDIC BED STRYKER 87 INCH FRAME 22" WIDE | N | \$6,588.00 | O |
| 6520014679899 | ULTRASONIC CLEANER | N | \$2,111.37 | O |
| 6520013136250 | ULTRASONIC PROPHYLAXIS UNIT DEN PORTABLE 4"X7.4"X7.6" INPUT 115V | N | \$1,175.34 | O |
| 6515011929456 | ULTRASONIC UNIT BLOOD FLOW DETECTION 120/230V 50/60HZ DOPPLER | N | \$2,995.00 | D |
| 6525014932209 | ULTRASOUND UNIT DIAGNOSTIC PORTABLE | N | \$36,826.69 | |
| 6515014696996 | VAPORIZER ANESTHESIA SEVOFLURANE VAPOR 2000 | N | \$4,667.83 | L |
| 6530013259299 | VENTILATOR PRTBLE VOL 120V 50/60HZ AC OR 12V DC PAT TRANSPORT | N | \$7,631.10 | F |

| NSN | NOMENCLATURE | ARC | PRICE | MRC |
|---------------|--|-----|------------|-----|
| 6515011507840 | WARMER BLOOD 115/230V 50/60HZ AC SOLID STATE PRTBL W/50IV EXT SE | N | \$793.15 | O |
| 6640014679283 | WASHER MICROPLATE ACCOMMODATES ALL 96WELL MICROPLATES | N | \$3,915.00 | O |
| 6630014444280 | WATER QUALITY ANALYSIS SET PERFORMS 27 TESTS | N | \$3,520.00 | O |

At present, analysis of historical maintenance data for these items is extremely limited. It is expected that the availability of data will increase the AMEDD's awareness of medical maintenance resource requirements and logistics responsiveness during combat operations.

Medical Maintenance Manpower Requirements for Support of Set the Force Agenda

A review of the Standard Requirements Codes (SRC) and Unit Assemblage Listings (UA) for the organizations included in the Set the Force Initiative and the AMEDD Investment Strategy revealed that an estimated 91,465 man-hours are required over the 18 - 24 month period to perform technical inspections of and to field the associated medical equipment. The Manpower Resources Requirement Table 6 includes the manpower requirements for the organizations identified as Tier 1, Tier 2, AIS, and also includes the USAMMA standard 33% estimated to recompense the estimated Battle Damage Assessment (BDA) of organizations deployed in support of Operation Iraqi Freedom (OIF).

Table 6. Manpower Resources Requirement

| SRC | Unit Type | Quantity of Units | Total Man-Hours / SRCs | Total Man-Days / SRCs |
|-----------|---------------------------------------|-------------------|------------------------|-----------------------|
| 08057L000 | MEDICAL CO (MSB) HVY DIV | 9 | 1,578 | 197 |
| 08058L100 | MEDICAL CO (FSB) HVY DIV | 27 | 3,477 | 435 |
| 08277L000 | MEDICAL CO, MSB, AASLT DIV | 1 | 73 | 9 |
| 08278L000 | MEDICAL CO, FSB, AASLT DIV | 3 | 219 | 27 |
| 08429A000 | MED DET, PREVENTIVE MED | 24 | 248 | 31 |
| 08437L000 | MED CO, HVY SEP BDE (HSB) | 4 | 289 | 36 |
| 08446L000 | HHD, MED EVAC BN | 6 | 45 | 6 |
| 08447L200 | MED CO, AIR AMBL (UH-60A) | 9 | 290 | 36 |
| 08449A000 | MEDICAL CO, GROUND AMBULANCE | 2 | 68 | 8 |
| 08449L000 | MEDICAL CO, GROUND AMBULANCE | 5 | 281 | 35 |
| 08456L000 | HQS & SPT CO (ASB) | 5 | 880 | 110 |
| 08457L000 | MEDICAL COMPANY (AREA SPT) | 34 | 5,317 | 665 |
| 08477L000 | MED CO, SPT SQDN, ACR | 3 | 327 | 41 |
| 08478A000 | DENTAL COMPANY (AREA SPT) | 2 | 436 | 54 |
| 08478L000 | MED CO, DENTAL SVCS | 19 | 2,379 | 297 |
| 08518LA00 | MED TM, FORWARD SURGICAL | 32 | 934 | 117 |
| 08527LA00 | MED TM, HEAD & NECK SURG | 4 | 53 | 7 |
| 08527LB00 | NEUROSURGERY TEAM | 8 | 230 | 29 |
| 08527LC00 | MED TM, EYE SURGERY | 6 | 275 | 34 |
| 08537LB00 | MED TM, DIALYSIS | 2 | 16 | 2 |
| 08736L100 | HOSPITAL UNIT, BASE (CSH) | 30 | 26,297 | 3,287 |
| 08736L200 | HOSPITAL UNIT, BASE (FLD) | 1 | 701 | 88 |
| 08736L300 | HOSPITAL UNIT, BASE (GEN) | 8 | 6,912 | 864 |
| 08737L000 | HOSPITAL UNIT, SURGICAL | 41 | 23,538 | 2,942 |
| 08738L000 | HOSPITAL UNIT, MEDICAL | 42 | 13,478 | 1,685 |
| 08739L000 | HOSPITAL UNIT, HOLDING | 1 | 79 | 10 |
| 08949A000 | MED DET, MINIMAL CARE | 20 | 812 | 101 |
| 08957A000 | HOSP CO, 164 BED, CORPS | 1 | 249 | 31 |
| 08958A000 | HOSP CO, 84 BED, CORPS | 5 | 1,951 | 244 |
| 31706L000 | HQ & MAIN SPT CO,SOSB(ABN) | 1 | 33 | 4 |
| | Total Unit Support Requirement | 355 | 91,465 | 11,432 |

Sample Data Collection Monthly Report July 2003



**Submitted to:
U.S. Army Medical Materiel Agency
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland**



Prepared by:
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Report # 018

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Introduction: The U.S. Army Medical Material Agency (USAMMA) serves as the Army Medical Department's (AMEDD) strategic level medical logistics organization. USAMMA's mission is to enhance the medical material readiness throughout the full range of military health service support missions worldwide. In this role USAMMA develops and implements innovative logistics concepts and technologies as well as promoting military and medical logistics information and knowledge.

The agency's core skills and technologies center on conducting life cycle management for commercial and non-developmental items, sustaining and modernizing the medical force, supporting exercises and contingency operations and disseminating medical logistics information and knowledge. Two of USAMMA's critical groups tasked with this mission are the Maintenance Engineering Operations Directorate (MEOD) and the Technology Support Division (TSD). The MEOD is responsible for the maintenance of all the medical equipment while the TSD is responsible for ensuring the medical technology is sustainable and meets current and future utilization requirements.

In order to enhance the strengths of MEOD and TSD, USAMMA has contracted, (contract # DAMD17-01-D-0004), with McAdams Technologies Inc., (subcontracted to Information Systems Support Inc. March 2001), to develop and implement a sample data collection program for targeted medical devices. The overall focus of this program is to assist USAMMA in supplying medical field equipment, and DEPMEDS facilities with current, and sustainable medical technology in a fiscally efficient manner.

Scope: This document, the eighteenth Sample Data Collection (SDC) report, includes responses to several inquiries from the field. One inquiry dealt with ventilators and different ages and sizes of patient, specifically if the Model 754 Portable Ventilator can be used on pediatric patients. If so, what accessories may be needed to make this happen. The other inquiry involved searching for a replacement for an obsolete item for performing eye surgery. Researching the system identified a suitable replacement but through consultation with several ophthalmology specialists, it was also identified that system was no longer needed in the set and could be recommended for deletion. Also, included in the Technology Support section are the parts lists for two orthopedic implant sets needed to fill recent requirements. The MEOD section includes an extensive list of requirements for Test, Measurement and Diagnostic Equipment (TMDE) in regards to the Army's Set The Force initiative.

Technology Support Issues

The following equipment and technology issues were addressed during July.

Ventilator Usage

There was a request from the field inquiring if the Impact Instrumentation Uni-Vent 754M Ventilator, NSN 6530-01-464-0267, could be used with pediatric patients and if so, what accessories were required. A technical support representative from Impact Instrumentation said the 754M ventilator can ventilate both pediatric and neonatal patients. Pediatric patients would require a pediatric disposable breathing circuit, P/N 820-0084-20 sold in cases of 20 per case at a cost of \$189.00 per case. For neonate patients, there needs to be an oxygen reservoir kit for providing low tidal volumes, P/N 820-0097-15. Each case has 15 reservoir kits at a cost of \$131.63 per case.



Fig. 1. Impact 754M Portable Ventilator

Vitreoretinal system,

A requirement existed to purchase a vitreoretinal cannula system, NSN 6515-01-426-4746 for UA M419. The item is a 20-gauge trocar/cannula system for use during invasive eye surgery. According to the technical representative for the manufacturer, the Dutch Ophthalmic Research Corporation, improvements in eye surgery methods made their 20-gauge system expendable and so it was discontinued without replacement. They do currently manufacture a 25-gauge system but the smaller size of the trocar/cannula system would require instruments to be replaced with instruments compatible with a 25-gauge system. ALCON, another manufacturer of eye surgery equipment, still manufactures a 20-gauge, 4-port trocar system. This system is a stand-alone system so there are no interface issues other than making sure the instrument size is compatible with the trocar/cannula system. In consultation with the Army ophthalmology consultant and several vitreoretinal surgery specialists, it appears most surgeons don't use them. This system will be recommended for deletion from the set.

Synthes, Part Number 105.40J Small Fragment Instrument and Implant Set, NSN 6515-01-469-1229

A requirement existed to purchase a small fragment instrument and implant set could be filled by Synthes part number 105.40J. Table 1 is a listing of all the parts that make up this set. According to Synthes, this set is only purchased by the military and it is a popular set.

Table 1. Components of the Small Fragment Instrument and Implant Set, P/N 105.40J

| Small Fragment Instrument & Implant Set 105.40J | | | | | | | |
|---|---|-----|-----|------|------------|----------------|--|
| Part Number | Component | QTY | U/M | Note | Unit Price | Extended Price | |
| 204.010 | 3.5MM CORTEX SCREW 10MM | 8 | EA | P | 9.00 | 72.00 | |
| 204.012 | 3.5MM CORTEX SCREW 12MM | 8 | EA | P | 9.00 | 72.00 | |
| 204.014 | 3.5MM CORTEX SCREW 14MM | 8 | EA | P | 9.00 | 72.00 | |
| 204.016 | 3.5MM CORTEX SCREW 16MM | 8 | EA | P | 9.00 | 72.00 | |
| 204.018 | 3.5MM CORTEX SCREW 18MM | 8 | EA | P | 9.00 | 72.00 | |
| 204.020 | 3.5MM CORTEX SCREW 20MM | 8 | EA | P | 9.00 | 72.00 | |
| 204.022 | 3.5MM CORTEX SCREW 22MM | 8 | EA | P | 9.00 | 72.00 | |
| 204.024 | 3.5MM CORTEX SCREW 24MM | 8 | EA | P | 9.00 | 72.00 | |
| 204.026 | 3.5MM CORTEX SCREW 26MM | 8 | EA | P | 9.00 | 72.00 | |
| 204.028 | 3.5MM CORTEX SCREW 28MM | 8 | EA | P | 9.00 | 72.00 | |
| 204.032 | 3.5MM CORTEX SCREW 32MM | 8 | EA | P | 9.00 | 72.00 | |
| 204.036 | 3.5MM CORTEX SCREW 36MM | 8 | EA | P | 9.00 | 72.00 | |
| 204.040 | 3.5MM CORTEX SCREW 40MM | 8 | EA | P | 9.00 | 72.00 | |
| 204.045 | 3.5MM CORTEX SCREW 45MM | 6 | EA | P | 9.00 | 54.00 | |
| 204.050 | 3.5MM CORTEX SCREW 50MM | 6 | EA | P | 9.00 | 54.00 | |
| 206.014 | 4.0MM CANCELLOUS BONE SCREW FULLY THREADED/14MM | 6 | EA | P | 9.90 | 59.40 | |
| 206.016 | 4.0MM CANCELLOUS BONE SCREW FULLY THREADED/16MM | 6 | EA | P | 9.90 | 59.40 | |
| 206.018 | 4.0MM CANCELLOUS BONE SCREW FULLY THREADED/18MM | 6 | EA | P | 9.90 | 59.40 | |
| 206.020 | 4.0MM CANCELLOUS BONE SCREW FULLY THREADED/20MM | 6 | EA | P | 9.90 | 59.40 | |
| 206.022 | 4.0MM CANCELLOUS BONE SCREW FULLY THREADED/22MM | 6 | EA | P | 9.90 | 59.40 | |
| 206.024 | 4.0MM CANCELLOUS BONE SCREW FULLY THREADED/24MM | 6 | EA | P | 9.90 | 59.40 | |
| 206.026 | 4.0MM CANCELLOUS BONE SCREW FULLY THREADED/26MM | 6 | EA | P | 9.90 | 59.40 | |
| 206.028 | 4.0MM CANCELLOUS BONE SCREW FULLY THREADED/28MM | 6 | EA | P | 9.90 | 59.40 | |
| 206.032 | 4.0MM CANCELLOUS BONE SCREW FULLY THREADED/32MM | 6 | EA | P | 9.90 | 59.40 | |
| 206.036 | 4.0MM CANCELLOUS BONE SCREW FULLY THREADED/36MM | 6 | EA | P | 9.90 | 59.40 | |
| 206.040 | 4.0MM CANCELLOUS BONE SCREW FULLY THREADED/40MM | 6 | EA | P | 9.90 | 59.40 | |
| 206.045 | 4.0MM CANCELLOUS BONE SCREW FULLY | 6 | EA | P | 9.90 | 59.40 | |

| | | | | | | | |
|---------|---|---|----|---|--|--------|--------|
| | THREADED/45MM | | | | | | |
| 206.050 | 4.0MM CANCELLOUS BONE SCREW FULLY THREADED/50MM | 6 | EA | P | | 9.90 | 59.40 |
| 206.055 | 4.0MM CANCELLOUS BONE SCREW FULLY THREADED/55MM | 4 | EA | P | | 9.90 | 39.60 |
| 206.060 | 4.0MM CANCELLOUS BONE SCREW FULLY THREADED/60MM | 4 | EA | P | | 9.90 | 39.60 |
| 207.012 | 4.0MM CANCELLOUS BONE SCREW PARTIALLY THREADED/12MM | 6 | EA | P | | 9.50 | 57.00 |
| 207.014 | 4.0MM CANCELLOUS BONE SCREW PARTIALLY THREADED/14MM | 6 | EA | P | | 9.50 | 57.00 |
| 207.016 | 4.0MM CANCELLOUS BONE SCREW PARTIALLY THREADED/16MM | 6 | EA | P | | 9.50 | 57.00 |
| 207.018 | 4.0MM CANCELLOUS BONE SCREW PARTIALLY THREADED/18MM | 6 | EA | P | | 9.50 | 57.00 |
| 207.020 | 4.0MM CANCELLOUS BONE SCREW PARTIALLY THREADED/20MM | 6 | EA | P | | 9.50 | 57.00 |
| 207.022 | 4.0MM CANCELLOUS BONE SCREW PARTIALLY THREADED/22MM | 6 | EA | P | | 9.50 | 57.00 |
| 207.024 | 4.0MM CANCELLOUS BONE SCREW PARTIALLY THREADED/24MM | 6 | EA | P | | 9.50 | 57.00 |
| 207.026 | 4.0MM CANCELLOUS BONE SCREW PARTIALLY THREADED/26MM | 6 | EA | P | | 9.50 | 57.00 |
| 207.028 | 4.0MM CANCELLOUS BONE SCREW PARTIALLY THREADED/28MM | 6 | EA | P | | 9.50 | 57.00 |
| 207.030 | 4.0MM CANCELLOUS BONE SCREW PARTIALLY THREADED/30MM | 6 | EA | P | | 9.50 | 57.00 |
| 207.035 | 4.0MM CANCELLOUS BONE SCREW PARTIALLY THREADED/35MM | 6 | EA | P | | 9.50 | 57.00 |
| 207.040 | 4.0MM CANCELLOUS BONE SCREW PARTIALLY THREADED/40MM | 6 | EA | P | | 9.50 | 57.00 |
| 207.045 | 4.0MM CANCELLOUS BONE SCREW PARTIALLY THREADED/45MM | 6 | EA | P | | 9.50 | 57.00 |
| 207.050 | 4.0MM CANCELLOUS BONE SCREW PARTIALLY THREADED/50MM | 6 | EA | P | | 9.50 | 57.00 |
| 219.98 | WASHER 7.0MM | 6 | EA | P | | 15.50 | 93.00 |
| 241.13 | 3.5MM T-PLATE 3 HOLES HEAD/ 3 HOLES SHAFT-RIGHT ANGLE | 1 | EA | P | | 74.50 | 74.50 |
| 241.14 | 3.5MM T-PLATE 4 HOLES HEAD/ 4 HOLES SHAFT-RIGHT ANGLE | 1 | EA | P | | 77.00 | 77.00 |
| 241.23 | 3.5MM T-PLATE 3 HOLES HEAD/ 3 HOLES SHAFT-OBLIQUE ANGLE | 1 | EA | P | | 129.00 | 129.00 |
| 241.25 | 3.5MM T-PLATE 3 HOLES HEAD/ 5 HOLES SHAFT-OBLIQUE ANGLE | 1 | EA | P | | 141.00 | 141.00 |
| 241.32 | ONE-THIRD TUBULAR PLATE WITH COLLAR 2 HOLES/25MM | 1 | EA | P | | 32.75 | 32.75 |
| 241.33 | ONE-THIRD TUBULAR PLATE WITH COLLAR 3 HOLES/37MM | 1 | EA | P | | 34.25 | 34.25 |
| 241.34 | ONE-THIRD TUBULAR PLATE WITH COLLAR 4 HOLES/49MM | 2 | EA | P | | 39.75 | 79.50 |
| 241.35 | ONE-THIRD TUBULAR PLATE WITH COLLAR 5 HOLES/61MM | 2 | EA | P | | 39.75 | 79.50 |
| 241.36 | ONE-THIRD TUBULAR PLATE WITH COLLAR 6 HOLES/73MM | 2 | EA | P | | 41.00 | 82.00 |

| | | | | | | | |
|--------|---|---|----|---|---|----------|----------|
| 241.37 | ONE-THIRD TUBULAR PLATE WITH COLLAR 7 HOLES/85MM | 1 | EA | P | | 41.00 | 41.00 |
| 241.38 | ONE-THIRD TUBULAR PLATE WITH COLLAR 8 HOLES/97MM | 1 | EA | P | | 42.75 | 42.75 |
| 241.83 | CLOVERLEAF PLATE THIN BLADE 3 HOLES/88MM | 1 | EA | P | | 182.00 | 182.00 |
| 241.84 | CLOVERLEAF PLATE THIN BLADE 4 HOLES/104MM | 1 | EA | P | | 195.00 | 195.00 |
| 248.06 | 3.5MM DCP- PLATE 6 HOLES/73MM | 2 | EA | P | | 88.50 | 177.00 |
| 248.07 | 3.5MM DCP- PLATE 7 HOLES/85MM | 2 | EA | P | | 92.00 | 184.00 |
| 248.08 | 3.5MM DCP- PLATE 8 HOLES/97MM | 2 | EA | P | | 97.00 | 194.00 |
| 248.10 | 3.5MM DCP- PLATE 10 HOLES/121MM | 2 | EA | P | | 103.00 | 206.00 |
| 292.12 | 1.25MM KIRSCHNER WIRE W/TROCAR POINT 150MM | 1 | TP | P | | 59.00 | 59.00 |
| 292.16 | 1.6MM KIRSCHNER WIRE W/TROCAR POINT 150MM | 1 | TP | P | | 59.00 | 59.00 |
| 292.20 | 2.0MM KIRSCHNER WIRE W/TROCAR POINT 150MM | 1 | TP | P | | 59.00 | 59.00 |
| 305.40 | SMALL FRAGMENT INSTRUMENT & IMPLANT SET GRAPHIC CASE | 1 | EA | | * | 1,015.00 | 1,015.00 |
| 310.24 | 2.5MM DRILL BIT/JC/GOLD/95MM | 3 | EA | | * | 46.50 | 139.50 |
| 310.36 | 3.5MM DRILL BIT/JC/95MM | 2 | EA | | | 40.00 | 80.00 |
| 310.89 | COUNTERSINK F/3.5MM CORTEX & 4.0MM CANCELLOUS BONE SCREWS | 1 | EA | | | 112.00 | 112.00 |
| 311.32 | TAP FOR 3.5MM CORTEX SCREWS GOLD/110MM | 2 | EA | | * | 80.00 | 160.00 |
| 311.34 | TAP FOR 4.0MM CANCELLOUS BONE SCREWS/110MM | 2 | EA | | | 80.00 | 160.00 |
| 311.43 | HANDLE WITH QUICK COUPLING, SMALL | 1 | EA | | * | 245.00 | 245.00 |
| 312.20 | 2.0MM PARALLEL DRILL GUIDE AND DRILL SLEEVE | 1 | EA | | | 186.00 | 186.00 |
| 312.28 | 3.5MM/2.5MM DOUBLE DRILL SLEEVE | 1 | EA | | * | 223.00 | 223.00 |
| 312.30 | 3.5MM/2.5MM INSERT DRILL SLEEVE | 1 | EA | | * | 74.00 | 74.00 |
| 314.02 | SMALL HEXAGONAL SCREWDRIVER WITH HOLDING SLEEVE | 1 | EA | | * | 233.00 | 233.00 |
| 314.03 | SMALL HEXAGONAL SCREWDRIVER SHAFT | 1 | EA | | | 38.00 | 38.00 |
| 319.04 | DEPTH GAUGE FOR 2.7MM & SMALL SCREWS | 1 | EA | | * | 261.00 | 261.00 |
| 319.39 | SHARP HOOK | 1 | EA | | | 58.00 | 58.00 |
| 319.97 | SCREW FORCEPS | 1 | EA | | | 46.25 | 46.25 |
| 322.32 | 3.5MM DCP- DRILL GUIDE NEUTRAL & LOAD | 1 | EA | | * | 326.00 | 326.00 |
| 329.04 | BENDING IRON FOR 2.7MM & 3.5MM PLATES | 1 | EA | | * | 139.00 | 139.00 |
| 329.05 | BENDING IRON FOR 2.7MM & 3.5MM PLATES | 1 | EA | | * | 139.00 | 139.00 |
| 329.55 | BENDING TEMPLATE 5 HOLES FOR 2.7MM & 3.5MM PLATES | 1 | EA | | | 21.25 | 21.25 |
| 329.57 | BENDING TEMPLATE 7 HOLES FOR 2.7MM & 3.5MM PLATES | 1 | EA | | | 21.25 | 21.25 |
| 398.80 | SELF-CENTERING BONE FORCEPS 10MM SERRATED JAW-SPEED LOCK | 1 | EA | | | 504.00 | 504.00 |
| 399.18 | SMALL HOHMANN RETRACTOR 6MM | 1 | EA | | | 151.00 | 151.00 |

| | | | | | | | |
|--------|---|---|----|--|--|-------------------------|-----------|
| | SHORT NARROW TIP 160MM | | | | | | |
| 399.19 | SMALL HOHMANN RETRACTOR 8MM SHORT NARROW TIP 160MM | 1 | EA | | | 151.00 | 151.00 |
| 399.40 | PERIOSTEAL ELEVATOR 6MM CURVED BLADE-STRAIGHT EDGE | 1 | EA | | | 149.00 | 149.00 |
| 399.49 | HOHMANN RETRACTOR 15MM 160MM | 2 | EA | | | 186.00 | 372.00 |
| 399.97 | REDUCTION FORCEPS WITH POINTS RATCHET 130MM | 1 | EA | | | 151.00 | 151.00 |
| 399.99 | REDUCTION FORCEPS WITH SERRATED JAW-RATCHET 144MM | 1 | EA | | | 362.00 | 362.00 |
| | | | | | | | |
| | Notes | | | | | Implant Total | 4,914.65 |
| | P indicates Implant | | | | | Instrument Total | 5,517.25 |
| | * indicates Key Component | | | | | Total | 10,431.90 |

Synthes, Part Number 199.951S Orthopedic External Fixation Device Set, NSN 6515-01-434-4914

A requirement existed to purchase several orthopedic external fixation device sets. In past procurements, Synthes assembled the parts and sold them as sets to the military. The parts for the sets are still available however Synthes no longer packages them as a set and is not willing to make up sets with these components. Their rationale is that the set is made up of single-use implants as well as reusable instruments. If one facility has a requirement for several sets, that facility could purchase two sets of reusable instruments and then continue to just purchase the consumable sets instead of entire sets. The instruments would be a one-time buy while the consumables would be recurring procurements. Table 2 is a list of consumables while Table 3 shows the reusable instruments to make a complete set.

Table 2. One-Time use External Fixation Device Set Consumable and Implant

| Part Number | Component | QTY | U/M | Note | Unit Price | Extended Price |
|-------------|--|-----|-----|------|----------------------|----------------|
| 294.785 | Ø5.0MM X 175MM SELF-DRILLING SCHANZ SCREWS | 4 | EA | | 108.00 | 432.00 |
| 393.64 | ADJUSTABLE CLAMP | 4 | EA | | 301.00 | 1,204.00 |
| 394.86 | Ø 11.0MM CARBON FIBER ROD | 1 | EA | | 179.00 | 179.00 |
| 394.97 | END CAPS FOR CARBON FIBER ROD | 2 | EA | | 11.00 | 22.00 |
| | | | | | | |
| | | | | | Implant Total | 1,837.00 |

Table 3. Reusable Instruments for External Fixation Device Set

| Part Number | Component | QTY | U/M | Note | Unit Price | Extended Price |
|-------------|--------------------------------|-----|-----|------|-------------------------|----------------|
| 395.911 | DRILL GUIDE HANDLE | 1 | EA | | 143.00 | 143.00 |
| 395.923 | Ø 6.0/5.0MM DRILL SLEEVE, LONG | 1 | EA | | 83.50 | 83.50 |
| 395.913 | Ø 5.0/3.5MM DRILL SLEEVE, LONG | 1 | EA | | 72.00 | 72.00 |
| 394.182 | Ø 3.5MM TROCAR, LONG | 1 | EA | | 59.50 | 59.50 |
| 321.16 | 11.0MM COMBINATION WRENCH | 1 | EA | | 195.00 | 195.00 |
| | | | | | | |
| | | | | | Instrument Total | 553.00 |
| | | | | | Total | |

MEOD Issues

The following maintenance issues were addressed during July.

Test, Measurement, and Diagnostic Equipment (TMDE)

1. Recent evaluation of TOE medical units capabilities indicated that numerous medical units fall into the category of potentially lacking the capability of providing optimal patient care and or accomplishment of their medical mission due to either inadequate sustainment or anticipated losses as a result of deployment to support Operation Iraqi Freedom.

2 Tables 4 through 9 list the medical organizations that were identified to be sustained in accordance with the Set the Force initiative and the quantities of Test, Measurement, and Diagnostic Equipment (TMDE) each unit requires to facilitate their medical equipment maintenance mission. The listing is divided into four categories: AMEDD Investment Strategy (AIS), Battle Damage Assessment (BDA), TIER 1, and TIER 2. TMDE requirements include electrosurgical test sets, defibrillator analyzers, test lungs, non-invasive blood pressure analyzers, infusion pump analyzers, pulse oximetry simulators, x-ray calibration systems, oscilloscopes, ultrasound watt meters, computers, Riken meters, gas flow analyzers, storage cases, thermometers, invasive blood pressure test cables, and temperature test cables.

Table 4. Set The Force TMDE Requirements for AIS, BDA, and Tier 1

| | Test Set, Electrosurge | Defibrillator Analyzer w/Pacing | Test Lung | Non-Invasive Blood Pressure Analyzer | Infusion Pump (IV) Analyzer |
|---------------------------|---------------------------------|--|-----------------|--|--------------------------------------|
| Total Requirements | 120 | 122 | 122 | 122 | 83 |
| AIS | | | | | |
| 10 MTN DIV | 4 | 4 | 4 | 4 | NA |
| 172 SBCT | 1 | 1 | 1 | 1 | NA |
| 228 CSH | 1 | 1 | 1 | 1 | 1 |
| 278 ACR | 1 | 1 | 1 | 1 | NA |
| 328 CSH | 1 | 1 | 1 | 1 | 1 |
| 349 CSH | 1 | 1 | 1 | 1 | 1 |
| CAMP PARKS | NA | NA | NA | NA | NA |
| FT MCCOY | NA | NA | NA | NA | NA |
| AIS SUMMARY | 9 Test Set, Electrosurge | 9 Defibrillator Analyzer w/Pacing | 9 Test Lung | 9 Non-Invasive Blood Pressure Analyzer | 3 Infusion Pump (IV) Analyzer |
| BDA | | | | | |
| ANTICIPATED LOSS | 24 | 23 | 23 | 23 | 14 |
| BDA SUMMARY | 24 Test Set, Electrosurge | 23 Defibrillator Analyzer w/Pacing | 23 Test Lung | 23 Non-Invasive Blood Pressure Analyzer | 14 Infusion Pump (IV) Analyzer |

| TIER 1 | | | | | |
|-----------------------|--|---|------------------------|---|---|
| 1 AD | 3 | 3 | 3 | 3 | NA |
| 1 ID | 4 | 4 | 4 | 4 | NA |
| 1 CD | 1 | 1 | 1 | 1 | NA |
| 2 ID | 3 | 3 | 3 | 3 | NA |
| 25 ID | 3 | 3 | 3 | 3 | NA |
| 3 ID | 3 | 3 | 3 | 3 | NA |
| 82 AA | 2 | 2 | 2 | 2 | NA |
| HILL | 4 | 4 | 4 | 4 | 4 |
| TOBYHANNA | 3 | 3 | 3 | 3 | 3 |
| TRACY | 3 | 3 | 3 | 3 | 3 |
| TIER 1 SUMMARY | 29 Test Set, Electrosurge | 29 Defibrillator Analyzer w/Pacing | 29 Test Lung | 29 Non-Invasive Blood Pressure Analyzer | 10 Infusion Pump (IV) Analyzer |

Table 5. Set The Force TMDE Requirements for AIS, BDA, and Tier 1 (continued)

| | SPO2 Simulator | X-Ray Calibration System | Hand-Held Oscilloscope | Ultrasound Wattmeter | Computer TMDE |
|---------------------------|-----------------------------|---------------------------------------|-------------------------------------|----------------------------------|----------------------------|
| Total Requirements | 121 | 140 | 166 | 60 | 127 |
| AIS | | | | | |
| 10 MTN DIV | 4 | 4 | 4 | NA | 4 |
| 172 SBCT | 1 | 1 | 1 | NA | 1 |
| 228 CSH | 1 | 1 | 1 | 1 | 1 |
| 278 ACR | 1 | 1 | 1 | NA | 1 |
| 328 CSH | 1 | 1 | 1 | 1 | 1 |
| 349 CSH | 1 | 1 | 1 | 1 | 1 |
| CAMP PARKS | NA | NA | NA | NA | 1 |
| FT MCCOY | NA | NA | NA | NA | 1 |
| AIS SUMMARY | 9 SPO2 Simulator | 9 X-Ray Calibration System | 9 Hand-Held Oscilloscope | 3 Ultrasound Wattmeter | 11 Computer TMDE |
| BDA | | | | | |
| ANTICIPATED LOSS | 22 | 23 | 35 | 9 | 22 |
| BDA SUMMARY | 22 SPO2 Simulator | 23 X-Ray Calibration System | 35 Hand-Held Oscilloscope | 9 Ultrasound Wattmeter | 22 Computer TMDE |
| TIER 1 | | | | | |
| 1 AD | 3 | 3 | 3 | NA | 3 |
| 1 ID | 4 | 4 | 4 | NA | 4 |
| 1 CD | 1 | 1 | 1 | NA | 1 |
| 2 ID | 3 | 3 | 3 | NA | 3 |
| 25 ID | 3 | 3 | 3 | NA | 3 |
| 3 ID | 3 | 3 | 3 | NA | 3 |
| 82 AA | 2 | 2 | 2 | NA | 2 |

| | | | | | |
|-----------------------|-----------------------------|---------------------------------------|-------------------------------------|-----------------------------------|----------------------------|
| HILL | 4 | 4 | 4 | 4 | 4 |
| TOBYHANNA | 3 | 3 | 3 | 3 | 3 |
| TRACY | 3 | 3 | 3 | 3 | 3 |
| TIER 1 SUMMARY | 29 SPO2 Simulator | 29 X-Ray Calibration System | 29 Hand-Held Oscilloscope | 10 Ultrasound Wattmeter | 29 Computer TMDE |

Table 6. Set The Force TMDE Requirements for AIS, BDA, and Tier 1 (continued)

| | Riken Meter TMDE | Gas Flow Analyzer | Case #1 | Case #2 | Thermometer | Invasive BP Test Cable | Temperature Test Cable |
|---------------------------|-------------------------------|--------------------------------|----------------------|----------------------|--------------------------|-------------------------------------|-------------------------------------|
| Total Requirements | 68 | 128 | 258 | 258 | 126 | 126 | 126 |
| AIS | | | | | | | |
| 10 MTN DIV | NA | 4 | 8 | 8 | 4 | 4 | 4 |
| 172 SBCT | NA | 1 | 2 | 2 | 1 | 1 | 1 |
| 228 CSH | 1 | 1 | 2 | 2 | 1 | 1 | 1 |
| 278 ACR | NA | 1 | 2 | 2 | 1 | 1 | 1 |
| 328 CSH | 1 | 1 | 2 | 2 | 1 | 1 | 1 |
| 349 CSH | 1 | 1 | 2 | 2 | 1 | 1 | 1 |
| CAMP PARKS | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| FT MCCOY | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| AIS SUMMARY | 5 Riken Meter TMDE | 11 Gas Flow Analyzer | 20 Case #1 | 20 Case #2 | 11 Thermometer | 11 Invasive BP Test Cable | 11 Temperature Test Cable |
| BDA | | | | | | | |
| ANTICIPATED LOSS | 10 | 23 | 50 | 50 | 23 | 23 | 23 |
| BDA SUMMARY | 10 Riken Meter TMDE | 23 Gas Flow Analyzer | 50 Case #1 | 50 Case #2 | 23 Thermometer | 23 Invasive BP Test Cable | 23 Temperature Test Cable |
| TIER 1 | | | | | | | |
| 1 AD | NA | 3 | 6 | 6 | 3 | 3 | 3 |
| 1 ID | NA | 4 | 8 | 8 | 4 | 4 | 4 |
| 1 CD | NA | 1 | 2 | 2 | 1 | 1 | 1 |
| 2 ID | NA | 3 | 6 | 6 | 3 | 3 | 3 |
| 25 ID | NA | 3 | 6 | 6 | 3 | 3 | 3 |
| 3 ID | NA | 3 | 6 | 6 | 3 | 3 | 3 |
| 82 AA | NA | 2 | 4 | 4 | 2 | 2 | 2 |
| HILL | 4 | 4 | 8 | 8 | 4 | 4 | 4 |
| TOBYHANNA | 3 | 3 | 6 | 6 | 3 | 3 | 3 |
| TRACY | 3 | 3 | 6 | 6 | 3 | 3 | 3 |
| TIER 1 SUMMARY | 10 Riken Meter TMDE | 29 Gas Flow Analyzer | 58 Case #1 | 58 Case #2 | 29 Thermometer | 29 Invasive BP Test Cable | 29 Temperature Test Cable |

Table 7. Set The Force TMDE Requirements for Tier 2

| | Test Set, Electrosurge | Defibrillator Analyzer w/Pacing | Test Lung | Non-Invasive Blood Pressure Analyzer | Infusion Pump (IV) Analyzer |
|----------------------|---------------------------|------------------------------------|-----------|--|--------------------------------|
| TIER 2 | | | | | |
| 10 CSH | 1 | 1 | 1 | 1 | 1 |
| 16 MED LOG | 7 | 7 | 7 | 7 | 7 |
| 18 GEN HSP | 1 | 1 | 1 | 1 | 1 |
| 31 CSH | 1 | 1 | 1 | 1 | 1 |
| 32 MED LOG | 3 | 5 | 5 | 5 | 5 |
| 47 CSH | 1 | 1 | 1 | 1 | 1 |
| 48 CSH | 2 | 2 | 2 | 2 | 2 |
| 61 ASMB HQ | 1 | 1 | 1 | 1 | NA |
| 73 CSH | 1 | 1 | 1 | 1 | 1 |
| 75 CSH | 1 | 1 | 1 | 1 | 1 |
| 93 DENT SVC | NA | NA | NA | NA | NA |
| 94 CSH | 1 | 1 | 1 | 1 | 1 |
| 121 CSH EAC | 1 | 1 | 1 | 1 | 1 |
| 143 DENT SVCS | NA | NA | NA | NA | NA |
| 168 ASMB | 1 | 1 | 1 | 1 | NA |
| 185 DENT SVCS | NA | NA | NA | NA | NA |
| 205 ASMB | 1 | 1 | 1 | 1 | NA |
| 249 CSH EAC | 1 | 1 | 1 | 1 | 1 |
| 261 ASMB HQ | 1 | 1 | 1 | 1 | NA |
| 309 CSH EAC | 1 | 1 | 1 | 1 | 1 |
| 323 CSH EAC | 1 | 1 | 1 | 1 | 1 |
| 324 CSH | 1 | 1 | 1 | 1 | 1 |
| 325 CSH EAC | 1 | 1 | 1 | 1 | 1 |
| 333 DENT SVCS | NA | NA | NA | NA | NA |
| 337 CSH | 1 | 1 | 1 | 1 | 1 |
| 339 CSH | 1 | 1 | 1 | 1 | 1 |
| 344 CSH | 1 | 1 | 1 | 1 | 1 |
| 350 DENT SVCS | NA | NA | NA | NA | NA |
| 352 CSH | 1 | 1 | 1 | 1 | 1 |
| 360 DENT SVCS | NA | NA | NA | NA | NA |
| 373 DENT SVCS | NA | NA | NA | NA | NA |
| 380 DENT SVCS | NA | NA | NA | NA | NA |
| 399 CSH | 1 | 2 | 2 | 2 | 2 |
| 405 CSH | 1 | 1 | 1 | 1 | 1 |
| 418 MEDLOG CO | 4 | 4 | 4 | 4 | 4 |
| 427 MEDLOG BN | 4 | 4 | 4 | 4 | 4 |
| 145 MEDLOG BN | 8 | 8 | 8 | 8 | 8 |
| 455 DENT SVCS | NA | NA | NA | NA | NA |
| 464 DENT SVCS | NA | NA | NA | NA | NA |
| 482 LOG SPT | 1 | 1 | 1 | 1 | 1 |
| 484 LOG SPT | 1 | 1 | 1 | 1 | 1 |
| 520 TAML | NA | NA | NA | NA | NA |
| 618 AREA SPT DENT | NA | NA | NA | NA | NA |
| 673 DENT SVC | NA | NA | NA | NA | NA |
| 673 DENT SVCS | NA | NA | NA | NA | NA |
| 806 DENT SVCS | NA | NA | NA | NA | NA |

| | | | | | |
|-----------------------|--|---|------------------------|---|---|
| 808 DENT SVCS | NA | NA | NA | NA | NA |
| 810 DENT SVCS | NA | NA | NA | NA | NA |
| 858 DENT SVCS | NA | NA | NA | NA | NA |
| 865 CSH | 1 | 1 | 1 | 1 | 1 |
| 914 HSP SURG | 1 | 1 | 1 | 1 | 1 |
| 921 HSP FLD | 1 | 1 | 1 | 1 | 1 |
| 1880 LOG SPT | 1 | 1 | 1 | 1 | 1 |
| 1895 HEAD & NECK | NA | NA | NA | NA | NA |
| 9144 ASMB | 1 | 1 | 1 | 1 | NA |
| TIER 2 SUMMARY | 58 Test Set, Electrosurge | 61 Defibrillator Analyzer w/Pacing | 61 Test Lung | 61 Non-Invasive Blood Pressure Analyzer | 56 Infusion Pump (IV) Analyzer |

Table 8. Set The Force TMDE Requirements for Tier 2 (continued)

| | SPO2 Simulator | X-Ray Calibration System | Hand-Held Oscilloscope | Ultrasound Watt Meter | Computer TMDE |
|---------------|----------------|--------------------------|------------------------|-----------------------|---------------|
| TIER 2 | | | | | |
| 10 CSH | 1 | 1 | 1 | 1 | 2 |
| 16 MED LOG | 7 | 7 | 7 | 2 | 7 |
| 18 GEN HSP | 1 | 1 | 1 | 1 | 1 |
| 31 CSH | 1 | 1 | 1 | 1 | 2 |
| 32 MED LOG | 5 | 5 | 10 | 2 | 6 |
| 47 CSH | 1 | 1 | 1 | 1 | 2 |
| 48 CSH | 2 | 2 | 2 | 1 | 2 |
| 61 ASMB HQ | 1 | 1 | 1 | NA | 1 |
| 73 CSH | 1 | 1 | 1 | 1 | 1 |
| 75 CSH | 1 | 1 | 1 | 1 | 1 |
| 93 DENT SVC | NA | 1 | 1 | NA | NA |
| 94 CSH | 1 | 1 | 1 | 1 | 1 |
| 121 CSH EAC | 1 | 1 | 1 | 1 | 1 |
| 143 DENT SVCS | NA | 1 | 1 | NA | NA |
| 168 ASMB | 1 | 1 | 1 | NA | 1 |
| 185 DENT SVCS | NA | 1 | 1 | NA | NA |
| 205 ASMB | 1 | 1 | 1 | NA | 1 |
| 249 CSH EAC | 1 | 1 | 1 | 1 | 1 |
| 261 ASMB HQ | 1 | 1 | 1 | NA | 1 |
| 309 CSH EAC | 1 | 1 | 1 | 1 | 1 |
| 323 CSH EAC | 1 | 1 | 1 | 1 | 1 |
| 324 CSH | 1 | 1 | 1 | 1 | 1 |
| 325 CSH EAC | 1 | 1 | 1 | 1 | 1 |
| 333 DENT SVCS | NA | 1 | 1 | NA | NA |
| 337 CSH | 1 | 1 | 1 | 1 | 1 |
| 339 CSH | 1 | 1 | 1 | 1 | 1 |
| 344 CSH | 1 | 1 | 1 | 1 | 1 |
| 350 DENT SVCS | NA | 1 | 1 | NA | NA |
| 352 CSH | 1 | 1 | 1 | 1 | 1 |
| 360 DENT SVCS | NA | 1 | 1 | NA | NA |
| 373 DENT SVCS | NA | 1 | 1 | NA | NA |
| 380 DENT SVCS | NA | 1 | 1 | NA | NA |

| | | | | | |
|-----------------------|-----------------------|---------------------------------|-------------------------------|------------------------------|----------------------|
| 399 CSH | 2 | 2 | 2 | 1 | 2 |
| 405 CSH | 1 | 1 | 1 | 1 | 1 |
| 418 MEDLOG CO | 4 | 4 | 4 | 2 | 4 |
| 427 MEDLOG BN | 4 | 4 | 4 | 2 | 4 |
| 145 MEDLOG BN | 8 | 8 | 16 | 4 | 8 |
| 455 DENT SVCS | NA | 1 | 1 | NA | NA |
| 464 DENT SVCS | NA | 1 | 1 | NA | NA |
| 482 LOG SPT | 1 | 1 | 1 | 1 | 1 |
| 484 LOG SPT | 1 | 1 | 1 | 1 | 1 |
| 520 TAML | NA | NA | 1 | NA | NA |
| 618 AREA SPT | | | | NA | NA |
| DENT | NA | 1 | 1 | | |
| 673 DENT SVC | NA | 1 | 1 | NA | NA |
| 673 DENT SVCS | NA | 1 | 1 | NA | NA |
| 806 DENT SVCS | NA | 1 | 1 | NA | NA |
| 808 DENT SVCS | NA | 1 | 1 | NA | NA |
| 810 DENT SVCS | NA | 1 | 1 | NA | NA |
| 858 DENT SVCS | NA | 1 | 1 | NA | NA |
| 865 CSH | 1 | 1 | 1 | 1 | 1 |
| 914 HSP SURG | 1 | 1 | 1 | 1 | 1 |
| 921 HSP FLD | 1 | 1 | 1 | 1 | 1 |
| 1880 LOG SPT | 1 | 1 | 1 | 1 | 1 |
| 1895 HEAD & NECK | NA | 1 | 1 | NA | NA |
| 9144 ASMB | 1 | 1 | 1 | NA | 1 |
| TIER 2 SUMMARY | 61 | 79 | 93 | 38 | 65 |
| | SPO2 Simulator | X-Ray Calibration System | Hand-Held Oscilloscope | Ultrasound Watt Meter | Computer TMDE |

Table 9. Set The Force TMDE Requirements for Tier 2 (continued)

| | Riken Meter TMDE | Gas Flow Analyzer | Case #1 | Case #2 | Thermometer | Invasive BP Test Cable | Temperature Test Cable |
|---------------|------------------|-------------------|---------|---------|-------------|------------------------|------------------------|
| TIER 2 | | | | | | | |
| 10 CSH | 2 | 2 | 4 | 4 | 1 | 1 | 1 |
| 16 MED LOG | 2 | 7 | 14 | 14 | 7 | 7 | 7 |
| 18 GEN HSP | 1 | 1 | 2 | 2 | 1 | 1 | 1 |
| 31 CSH | 2 | 2 | 4 | 4 | 2 | 2 | 2 |
| 32 MED LOG | 2 | 6 | 12 | 12 | 6 | 6 | 6 |
| 47 CSH | 2 | 2 | 4 | 4 | 2 | 2 | 2 |
| 48 CSH | 2 | 2 | 4 | 4 | 2 | 2 | 2 |
| 61 ASMB HQ | NA | 1 | 2 | 2 | 1 | 1 | 1 |
| 73 CSH | 1 | 1 | 2 | 2 | 1 | 1 | 1 |
| 75 CSH | 1 | 1 | 2 | 2 | 1 | 1 | 1 |
| 93 DENT SVC | NA | NA | NA | NA | NA | NA | NA |
| 94 CSH | 1 | 1 | 2 | 2 | 1 | 1 | 1 |
| 121 CSH EAC | 1 | 1 | 2 | 2 | 1 | 1 | 1 |
| 143 DENT SVCS | NA | NA | NA | NA | NA | NA | NA |
| 168 ASMB | NA | 1 | 2 | 2 | 1 | 1 | 1 |
| 185 DENT SVCS | NA | NA | NA | NA | NA | NA | NA |

| | | | | | | | |
|-------------------|----|----|----|----|----|----|----|
| 205 ASMB | NA | 1 | 2 | 2 | 1 | 1 | 1 |
| 249 CSH EAC | 1 | 1 | 2 | 2 | 1 | 1 | 1 |
| 261 ASMB HQ | NA | 1 | 2 | 2 | 1 | 1 | 1 |
| 309 CSH EAC | 1 | 1 | 2 | 2 | 1 | 1 | 1 |
| 323 CSH EAC | 1 | 1 | 2 | 2 | 1 | 1 | 1 |
| 324 CSH | 1 | 1 | 2 | 2 | 1 | 1 | 1 |
| 325 CSH EAC | 1 | 1 | 2 | 2 | 1 | 1 | 1 |
| 333 DENT SVCS | NA |
| 337 CSH | 1 | 1 | 2 | 2 | 1 | 1 | 1 |
| 339 CSH | 1 | 1 | 2 | 2 | 1 | 1 | 1 |
| 344 CSH | 1 | 1 | 2 | 2 | 2 | 1 | 1 |
| 350 DENT SVCS | NA |
| 352 CSH | 1 | 1 | 2 | 2 | 2 | 1 | 1 |
| 360 DENT SVCS | NA |
| 373 DENT SVCS | NA |
| 380 DENT SVCS | NA |
| 399 CSH | 2 | 2 | 4 | 4 | 4 | 2 | 2 |
| 405 CSH | 1 | 1 | 2 | 2 | 2 | 1 | 1 |
| 418 MEDLOG CO | 2 | 4 | 8 | 8 | 8 | 4 | 4 |
| 427 MEDLOG BN | 2 | 4 | 8 | 8 | 8 | 3 | 3 |
| 145 MEDLOG BN | 4 | 8 | 16 | 16 | 16 | 8 | 8 |
| 455 DENT SVCS | NA |
| 464 DENT SVCS | NA |
| 482 LOG SPT | 1 | 1 | 2 | 2 | 2 | 1 | 1 |
| 484 LOG SPT | 1 | 1 | 2 | 2 | 2 | 1 | 1 |
| 520 TAML | NA |
| 618 AREA SPT DENT | NA |
| 673 DENT SVC | NA |
| 673 DENT SVCS | NA |
| 806 DENT SVCS | NA |
| 808 DENT SVCS | NA |
| 810 DENT SVCS | NA |
| 858 DENT SVCS | NA |
| 865 CSH | 1 | 1 | 2 | 2 | 2 | 1 | 1 |
| 914 HSP SURG | 1 | 1 | 2 | 2 | 2 | 1 | 1 |
| 921 HSP FLD | 1 | 1 | 2 | 2 | 2 | 1 | 1 |
| 1880 LOG SPT | 1 | 1 | 2 | 2 | 2 | 1 | 1 |

| | | | | | | | |
|------------------|---------------------------|----------------------------|----------------|----------------|-------------------|---------------------------------|---------------------------------|
| 1895 HEAD & NECK | NA | NA | NA | NA | NA | NA | NA |
| 9144 ASMB | NA | 1 | 2 | 2 | 2 | 1 | 1 |
| TIER 2 SUMMARY | 43 Riken Meter TMDE | 65 Gas Flow Analyzer | 130 Case #1 | 130 Case #2 | 63 Thermometer | 63 Invasive BP Test Bable | 63 Temperature Test Cable |

Sample Data Collection Monthly Report August 2003



Submitted to:
U.S. Army Medical Materiel Agency
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland



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Report # 019

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Introduction: The U.S. Army Medical Material Agency (USAMMA) serves as the Army Medical Department's (AMEDD) strategic level medical logistics organization. USAMMA's mission is to enhance the medical material readiness throughout the full range of military health service support missions worldwide. In this role USAMMA develops and implements innovative logistics concepts and technologies as well as promoting military and medical logistics information and knowledge.

The agency's core skills and technologies center on conducting life cycle management for commercial and non-developmental items, sustaining and modernizing the medical force, supporting exercises and contingency operations and disseminating medical logistics information and knowledge. Two of USAMMA's critical groups tasked with this mission are the Maintenance Engineering Operations Directorate (MEOD) and the Technology Support Division (TSD). The MEOD is responsible for the maintenance of all the medical equipment while the TSD is responsible for ensuring the medical technology is sustainable and meets current and future utilization requirements.

In order to enhance the strengths of MEOD and TSD, USAMMA has contracted, (contract # DAMD17-01-D-0004), with McAdams Technologies Inc., (subcontracted to Information Systems Support Inc. March 2001), to develop and implement a sample data collection program for targeted medical devices. The overall focus of this program is to assist USAMMA in supplying medical field equipment, and DEPMEDS facilities with current, and sustainable medical technology in a fiscally efficient manner.

Scope: This document, the nineteenth Sample Data Collection (SDC) report, includes the results of an SDC visit to Camp Parks, Dublin, California performed by the Technology Support Division (TSD) and also the results of a Medical Equipment Assessment of a Combat Support Hospital (CSH) at the Sierra Army Depot, Herlong, California by the Maintenance Engineering Operations Division (MEOD).

Technology Support Issues

The following equipment and technology issues were addressed during August.

Results of SDC Visit to Camp Parks, Dublin, California

Robert Zak, Clinical Engineer Consultant, and Kevin Culihan, Biomedical Equipment Consultant, employees from ISS, Inc. under contract to the US Army Medical Materiel Agency, visited the RTS-MED at Camp Parks, California, August 4 through 8, 2003 to conduct a Sample Data Collection (SDC) survey.

The following RTS-MED personnel assisted during the visit: Ms. Susan Weiland, Executive Officer; Mr. Dana Jackson, Equipment Management Supervisor; Ms. Renee Steinkellner, Medical Maintenance Lead; Mr. Ryan Houck, BMET; Mr. Tim Stevens, BMET; Mr. Steve Chipp, BMET; Ms. Sue Gomez, Parts Clerk; Mr. Dean Bryant, BMET; and Mr. Benny Fong, BMET.

This report only contains information gathered by Mr. Zak, whose survey dealt with technology support issues while Mr. Culihan's survey looked at equipment maintenance issues and will be reported separately.

The purpose of the visit was to identify on-hand medical equipment, gather information on technology and maintenance issues, take photographs of equipment items needed for the SDC database and gather equipment specification information for the database. A secondary goal was to gather information on accessories and consumables that are part of an equipment order, especially for recently fielded items. The goal to gather information on supplies and accessories that are normally procured along with the equipment item to make that item a complete and operable system was only partly successful. Although there were accessories and supplies on-hand at the RTS-MED, most was acquired from excess equipment and supply listings so, although the accessories and supplies can be used with many of the equipment items, they weren't necessarily the same parts that were purchased along with the equipment item initially.

Reference Library. The RTS-MED has an excellent reference library of operations and maintenance manuals for the equipment items they are responsible for maintaining. Current SDC database information was cross-referenced against that library and specifications for a large number of equipment items in the SDC database could be gathered. Many of the equipment items have been in or are in the process of being replaced but are still being used in many assemblages the RTS-MED was responsible for maintaining.

Photographs for the SDC database. New photographs for the database were taken of the following items: gooseneck floor lamp (NSN 6530-01-306-1701), four suction units (NSNs 6515-01-304-6497, 6515-01-358-9480, 6515-01-435-5350, and 6515-01-410-6868), surgical light (NSN 6530-00-937-2204), proctosigmoidoscope set (NSN 6515-01-253-8133), digital thermometer (NSN 6515-01-313-6242), head-mounted indirect ophthalmoscope (NSN 6540-01-283-8650), cast cutter (NSN 6515-00-323-4510), dermatome (NSN 6515-01-413-8046), water bath (NSN 6640-00-765-0621), ultrasonic muscle stimulator (NSN 6515-01-378-4529), peripheral nerve stimulator (NSN 6515-01-397-5212), ultrasonic stethoscope (NSN 6515-01-245-5056), x-ray film processor (NSN 6525-01-303-6235), wound debridement system (NSN 6530-01-388-1638), patient thermo-regulator (NSN 6530-01-244-8101), blood plasma freezer (NSN 4110-01-358-3836), and a field surgical table (NSN 6530-01-321-5592).

Solid-State Refrigerator. One maintenance issue was mentioned. There is a problem with maintaining Thermopool refrigerators, (NSNs 4110-01-451-2356 and 4110-01-287-7111). There is a thermistor that fails because the coupling adhesive material dries out over time. The thermistor then no longer makes contact with the metal heat sink and burns out. The manufacturer only sells complete assemblies at a cost of approximately \$400 each. The BMETs at the RTS-MED found a separate source for the thermistor and heat-sink adhesive material and can now repair their refrigerators by replacing just the bad components. The cost of replacement parts is about \$20. The cost savings are significant since this is a common problem and there are four sets of thermo-electronic assemblies on each refrigerator. Figure 1 is a picture of the fin and thermistor assembly while Figure 2 is a close-up of a burned-out thermistor.

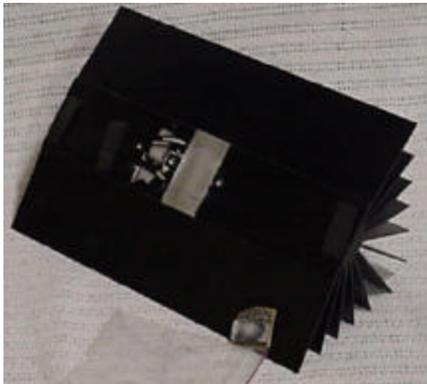


Figure 1. Thermo electronic assembly

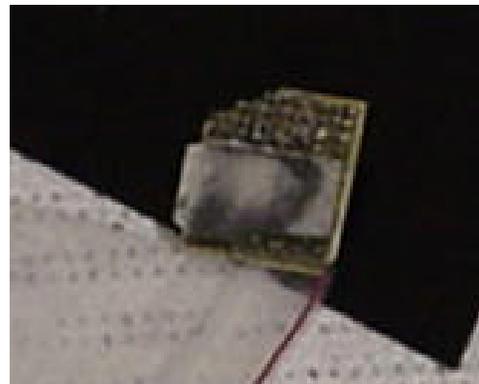


Figure 2. Thermistor

Proctosigmoidoscope. Figure 3 shows the Welch Allyn Proctosigmoidoscope Set, NSN 6515-01-253-8133. The unit comes conveniently packed in a rugged custom carrying case. The halogen light provides for true tissue color and consistent, long-lasting illumination. Fiber optics provide a cool distal ring of light with no reflections, no obstructions. Made from autoclavable stainless steel for convenience and durability. The hinged window with a neoprene seal avoids fogging during insufflation. The graduated tube has a removable tip for fiber cleaning. The unit is compatible with available adapters to fit most Welch Allyn power handles. Table 1 includes components of the set.



Figure 3. Proctosigmoidoscope set

Table 1. Components of Welch Allyn Proctosigmoidoscope Set 35303

| Part Number | Nomenclature | Quantity |
|-------------|--|----------|
| 32410 | 15 mm x 15 cm Pediatric, Speculum Only with Obturator | 1 |
| 32820 | 19 mm x 25 cm Standard Sigmoidoscope, Speculum Only with Obturator | 1 |
| 37023 | 23 mm x 7 cm Fiber Optic Anoscope, Speculum Only with Obturator | 1 |
| 07800-U | 6 Volt Halogen Bulb | 1 |
| NA | Light Handle with 3 Foot Cord | 1 |
| NA | Transformer with 5 Foot Cord | 1 |
| NA | Insufflation Bulb, Complete | 1 |
| NA | 30 cm Suction Tube (Standard) | 1 |
| NA | Hard Case for Set | 1 |

Suction Unit. Sorensen thermotic suction unit, model 2590-G-120, NSN 6515-01-358-9480. Sorensen was purchased by Impact Instrumentation back in 1993 and has continued selling the Sorensen line. This is a post operative mobile unit designed to deliver mild intermittent rise suction for use in drainage of the abdomen, bladder and other body cavities or abdominal decompression. It is ideal when either 90 or 120 mmHg of vacuum is required. The Model 2590 is recommended for use with the Wangenstein suctioning technique. Figure 4 is a picture of the thermotic suction unit.



Figure 4. Thermotic Suction Unit

Suction Apparatus. There was a Schucho model 130 aspirator, NSN 6515-01-410-6868, on hand (See figure 5). The NSN is not in the UDR and doesn't appear to be a valid number. The aspirator is not listed in any UA but this unit can still be purchased commercially and was part of the equipment items found at the RTS-MED at Camp Parks.



Figure 5. Model 130 Aspirator

Water Bath. Figure 6 is a Lab-Line serological water bath, model 18005, NSN 6640-00-765-0621. This is a general purpose water bath with a capacity of 14.6 liters. This unit has an accuracy of $\pm 0.5^{\circ}$ C at 37° C. The unit can become a boiling water bath when used with the included gable cover if required.



Figure 6. Lab-Line Water Bath

Wound Debridement System. Figure 7 shows a Zimmer Pulsavac wound debridement system model G330. It has an NSN of 6530-01-388-1638 but it does not appear to be a valid stock number. This unit is located in a field operating suite and it is included as part of operator training given to operating room technicians by the RTS-MED staff which apparently means it is being used in the field to some degree.



Figure 7. Zimmer Pulsavac Irrigator

Thermo regulator. Figure 8 is a photograph of a Gaymar model MTA 4700D patient thermo regulator, NSN 6530-01-244-8101. The thermo regulator comes with several sizes of blankets and connecting hoses as well as a custom fitted shipping container. These units provide both patient heating and cooling by circulating water through a vinyl blanket. There is both a heater and a water cooling compressor in these units.



Figure 8. Gaymar Patient Thermo regulator

Muscle Stimulator. Chattanooga Group model 7975 ultrasonic muscle stimulator, NSN 6515-01-378-4529, is shown in figure 9. The item is presented with all its accessories and supplies as received. Table 1 includes the parts and accessories associated with the 700-C unit. The UDR lists this item as an AAC “J” and the SDC database shows this as a limited support item (ALSI).



Figure 9. Chattanooga Muscle Stimulator

Table 2: Parts and Accessories for Model 7975 Muscle Stimulator

| Part Number | Nomenclature | Quantity |
|-------------|---|----------|
| 700-C | Ultrasonic Stimulator | 1 |
| 79001 | Hand-held probe | 1 |
| 79008 | Rectangle applicator for probe | 1 |
| 79062 | Sponge for rectangular applicator | 1 |
| 79005 | Spot applicator for probe | 1 |
| 79059 | Sponge for spot applicator | 1 |
| 72853 | Active electrode pads, 3 inch red | 2 |
| 72852 | Active electrode pads, 3 inch black | 2 |
| 72851 | Active electrode pad, 4 inch red | 1 |
| 72850 | Active electrode pad, 4 inch black | 1 |
| 72854 | Dispersive electrode pad, 8 inch by 10 inch | 1 |
| 79061 | Sponge for dispersive pad | 1 |
| 71777 | Active lead, red and black | 1 |
| 72955 | Dispersive lead | 1 |
| 72849 | Active lead, red, bifurcated | 1 |
| 72855 | Active lead, black, bifurcated | 1 |
| 72855 | Active lead, green, bifurcated (same number as black) | 1 |
| 72953 | Active lead, red | 1 |
| 72954 | Active lead, black | 1 |
| 10648 | Short straps, 2.5 inch by 24 inches | 2 |
| 10832 | Long strap, 2.5 inch by 48 inches | 1 |
| 74470 | Instruction book | 1 |
| 75284 | Dispersive electrode 1.5 inch by 3.5 inch | 1 |
| 4264 | Ultrasound Gel | 1 |

Suction Apparatus. Impact Instrumentation 308M with provisioning, NSN 6515-01-304-6497. Multi-powered suction apparatus that is aero medical certified for fixed wing aircraft. The unit runs on its own internal battery, 120/230 volt AC, or 12 volt DC and frequencies of 50, 60, or 400 Hz. The unit comes with overflow protection, rinse bottle, tracheal catheters, vacuum gauge, vacuum control and hard container. See figure 10.



Figure 10. 308M Suction Apparatus

Suction Apparatus. Impact Instrumentations 325M Suction Apparatus, NSN 6515-01-435-5350, is shown in figure 11. Similar to the 308M above but it runs on internal batteries only. When the batteries run low, it can be run while connected to a 12 volt DC outlet but should not be run when connected to wall outlets or there is the risk of burning out the battery charger.



Figure 11. 325M Suction Apparatus

Nerve Stimulator. The MiniStim peripheral nerve stimulator, NSN 6515-01-397-5212, is used by anesthesiologists and anesthesiologists to test the effects of neuromuscular block anesthesia on patients. The stimulators come with a soft carrying case, 9-volt non-rechargeable battery, instruction manual, alligator clip extension cable, and ball electrodes. Figure 12 is a picture of the nerve stimulator.



Figure 12. Peripheral Nerve Stimulator

Ultrasonic Stethoscope. The Medasonics BF-5A ultrasonic stethoscope, NSN 6515-01-245-5056 comes complete with a 9 volt battery, earphones, and Aquasonic conductive gel as shown in figure 13.



Figure 13. Ultrasonic Stethoscope

Digital Thermometer. Figure 14 is Diatek model 600 digital thermometer, NSN 6515-01-313-6242. It is capable of taking temperatures both orally and rectally. The unit operates on three “AA” batteries. It also has a pulse rate timer and ships with both reusable oral and rectal probes as well as 1000 disposable probe covers.



Figure 14. Diatek Digital Thermometer

Cast Cutter. Orthopedic cast cutter, NSN 6515-00-323-4510, is a heavy-duty cast cutter shipped in a reusable storage container. The cutter comes complete with a 2-inch cutting blade, a 2.5 inch cutting blade, and a wrench for changing the blades. See Figure 15.



Figure 15. Orthopedic Cast Cutter

Dermatome. Zimmer Mesh Graft Dermatome System, NSN 6515-01-413-8046, consists of a power supply, handpiece with cord, Philips head screwdriver, autoclavable case, plates of several different cutting widths and a box of disposable blades. Figure 16 is a picture of the handpiece and screwdriver while Figure 17 is a picture of the system as received.



Figure 16. Handpiece, screwdriver & plates



Figure 17. Dermatome system as purchased

Surgical Table. The Field Surgical Table by Atlantic Industries, NSN 6530-01-321-5592, shown in Figure 18, is no longer being purchased or manufactured but is still being used in the field.



Figure 18. Atlantic Industries Surgical Table

MEOD Issues

The following maintenance issues were addressed during August.

Combat Support Hospital (CSH) Medical Equipment Assessment, Sierra Army Depot

An assessment of the CSHs medical equipment was conducted at Sierra Army Depot during August 2003 to determine the extent of the equipment's susceptibility to movement. Much of the hospital's equipment was transported from Fort Lewis, WA via rail and ship to Southwest Asia and then returned to Sierra Army Depot in the same manner. None of the equipment deployed was actually utilized to support Operation Iraqi Freedom (OIF), nor was it actually removed from its shelters or MILVANs.

For the purpose of simplicity, the categories of medical equipment serviced are divided into four groupings.

Ship Short

Clinically Operational Equipment Set (COES)

Reserve Component Hospital Decrement (RCHD)

Minimum Essential Equipment for Training (MEET)

The **Ship Short** equipment consisted of items of equipment received from USAMMA and staged at SIAD for further shipment to the CSH pending the unit's arrival in the theater. Due to the CSH not participating in OIF, the ship short equipment remained stored in a controlled environment at SIAD pending the CSH's MRI reconfiguration.

The combination of the equipment being new, recently serviced, and stored within a controlled environment at Sierra precluded the equipment from encountering any notable deficiencies.

USAMMA fielded approximately 160 new and had recently been serviced medical equipment items to the **COES**. These items also were not subject to movement to or from the theater thus remained in a new condition.

The combination of the COES equipment being new and recently serviced by USAMMA precluded the equipment from encountering any notable deficiencies.

The equipment received from **RCHD** was also in new condition. The RCHD received a robust compliment of modernization and augmentation equipment prior to being shipped from SAID to Ft Lewis, WA.

During a preliminary walk through of a number of ISO Shelters, there was opportunity to observe several instances of equipment damage caused during shipping. Table 3 lists items obviously damaged during shipping.

Table 3 - Reserve Component Hospital Decrement (RCHD) Findings

| Operating Room - M301; DORA -3223 | | |
|-----------------------------------|--|---|
| Overhead Lighting | Had fallen from mounting studs | Properly securing lights prior to shipment would have precluded this from happening. |
| Electrosurg Apparatus | Sides of equipment were extensively scraped up | Proper security prior to shipment would have precluded this from happening. |
| OR Table | Armrest pads delaminating | Caused due to heat and friction. |
| | Radiographic Translucent Plates scraped and gouged (artifacts?) | Proper packing and security prior to shipment would have precluded this from happening. |
| | Radiographic Translucent Plates Spacer assemblies separated and parts dispersed throughout shelter | Caused as a result of Vibration due to shipping |
| Operating Room - M301; DORA -3224 | | |
| Overhead Lighting | Had fallen from mounting studs | Properly securing lights prior to shipment would have precluded this from happening. |
| Electrosurg Apparatus | Cart dented | Proper security prior to shipment would have precluded this from happening. |
| Electrosurg Apparatus | Paint abraded from equipment chassis (cosmetic) | Proper security prior to shipment would have precluded this from happening. |
| | Patient plate scraped and gouged; on floor | Proper security prior to shipment would have precluded this from happening |
| Cabinet | Paint scraped | Proper security of surrounding equipment would have precluded this from happening |

The majority of damage caused during shipment was cosmetic; with proper packing and security, these damages would have been minimized or precluded.

The MRI and COES fielding and sustainment included a serviceability assessment performed by a team of medical equipment repairers. Of the initial 490 items serviced, 43 items (9%) had deficiencies. A breakout of the deficiencies is listed in Table 4.

Table 4. Clinically Operational Equipment Set (COES) Findings

| NSN | Nomenclature | Deficiency | Qty |
|---------------|-------------------------------------|--|-----|
| 6515012610484 | Suction Apparatus Surgical | Missing Literature and some accessories | 1 |
| 6515012908949 | Light Head Fiber Optic | Missing Literature, lens cap, fiber optic cable cap (1). | 1 |
| 6515013046497 | Suction Appar Oropharyngeal | Missing Service Literature | 1 |
| 6515013101687 | Pacemaker Cardiac | Bad Battery | 1 |
| 6515014350050 | Suction Apparatus Surg | Power supply has intermittent problem | 1 |
| 6515014864310 | Pump Intravenous Infusion 3-Channel | Bad Power Supply | 1 |
| | | Error Code 289 Channel "C" | 1 |
| 6525011470212 | Illuminator X-Ray Film | Broken Lamp; Broken Lamp Socket | 1 |
| | | Broken Lamps | 1 |
| | | Failed Electrical Safety; Line cord resistance high. | 2 |
| 6525012300603 | Illuminator Xray Film | Missing Literature and lights | 1 |
| 6525012685152 | Camera Identification X-Ray | Missing literature and accessories | 1 |
| 6530012414393 | Light Floor | Frayed wire inside dome causing lamp to short. | 1 |
| 7910013270757 | Cleaner Vacuum Electric Vertical | Accessories and Literature missing | 3 |
| 6520013984613 | Compressor - Dehydrator Dental | Filter Assembly Threads Broken | 1 |
| 6530013432033 | Light Surgical Field | Batteries need to be replaced | 1 |
| | | Gas Spring Bad | 3 |

| NSN | Nomenclature | Deficiency | Qty |
|---------------|--------------------------------------|---|-----|
| 6530014689892 | Light Surgical Field | Light Head does not stay up; gas spring is bad | 9 |
| | | Battery and voltmeter are bad | 1 |
| | | Wheel Pin Corrosion; Gas Spring Not Working | 2 |
| | | Wheel Pins Corroded | 1 |
| 6530014296715 | Sink Unit Surgical Scrub And Utensil | Broken Latch | 1 |
| | | Foot Switch Out of adjustment | 1 |
| | | Loose screw inside unit | 1 |
| | | Missing Micro switch from parts kit | 1 |
| | | Tray Strap Pulled Away From Rivet; Needs Repair | 4 |

The **MEET** is the equipment kept at the unit's home station. During periods of non-deployment, this equipment is located at home station with the Reserve unit for the purpose of ensuring unit personnel are proficient with the operation and maintenance of the medical equipment with which the unit may potentially deploy. As well as the unit's responsibility to implement and maintain an effective operator level maintenance program, the unit also has organic medical equipment maintainers assigned for the performance of periodic scheduled and unscheduled services for the MEET assets.

Of the medical materiel sets (MMS) typically associated with the MEET, the sets of primary interest were the two MMS OP ROOM DEPMEDS/M (M301), and the MMS XRAY RADFLU DEP/M (M307). The state of readiness of certain medical equipment belonging to the MEET was found to be in a condition less than fully mission capable. Table 5 outlines some of the deficiencies noted during a cursory walk through of several MEET ISO shelters.

Table 5 - Minimum Essential Equipment for Training (MEET) Findings

| Operating Room - M301; DORA -3269 | | |
|-----------------------------------|---|--|
| Anesthesia Apparatus | Missing foot | Unit at higher risk of tipping over due to instability |
| Suction Apparatus | Broken power switch | Power switch does not function properly |
| Thermoregulator | Face plate control indicators disintegrated due to heat | Operator is unable to operate equipment due to the inability to determine location of selective controls |
| Ceiling Mounted OR Lights | Air pistons for stabilizing OR lights are defective | All four OR lights do not function properly. None of the OR lights can be properly positioned or stabilized during surgery. |
| Operating Room - M301; DORA -3268 | | |
| Ceiling Mounted OR Lights | Air pistons for stabilizing OR lights are defective | Three of four OR lights do not function properly. The OR lights can not be properly positioned or stabilized during surgery. |
| Electrosurgical Apparatus | Item not serviced in excess of four years | Potential of unit not functioning properly when required during surgery places patient at higher risk. |
| Electrosurgical Apparatus | Item not serviced in excess of three years | Potential of unit not functioning properly when required during surgery places patient at higher risk. |
| Electrosurgical Apparatus | Item not serviced in excess of three years | Potential of unit not functioning properly when required during surgery places patient at higher risk. |
| Automatic Tourniquet | Due services in 1999 | Potential of unit not functioning properly when required during surgery places patient at higher risk. |

Table 5 - Minimum Essential Equipment for Training (MEET) Findings

| X-Ray - M307; | | |
|-----------------------------|--|---|
| Continental X-Ray Apparatus | Over Table Tube not functioning | Not functioning for over a year. During JRTC rotation in Aug 02, unit used under table tube for all exposures. |
| | Vertical tube stand locking pin severely rusted | Complete disassemble of mounting bracket required in order to beat the components loose with a hammer. Pin and assemble rusted and pitted. Recommend replacement. |
| | Table counter weight assembly bolt sheared. Weights shifted causing extensive damage to guide. | Guide required to be replaced. |
| | Spotfilm tower guide rail rusty | Spot film tower does not move smoothly. Recommend replacement of guide rail. |
| | Collimator not functioning properly | Improper collimation may cause unnecessary exposure to patients. |
| | Locking pin for bucky tray not utilized during shipment. | Bucky tray tied down with a piece of rope. Bucky tray subject to damage due to potential movement during shipping. |
| | Signs of rust beginning to form on all exposed metallic components | NCOIC stated that unit was packed at Ft. Lewis during torrential rains. Exposure to rain and dampness for extended periods will eventually adversely affect sensitive medical equipment |

Once again it is apparent that the Army's Combat Service Support (CSS) medical elements are inadequately prepared to deploy and perform their primary mission with the degree of efficiency and effectiveness required during combat operations. Had the Combat Support Hospital been required to provide patient care in support of Operation Iraqi Freedom, it is evident that the hospital's x-ray capacity and the level of surgical capability were certainly diminished.

Sample Data Collection Monthly Report September 2003



Submitted to:
U.S. Army Medical Materiel Agency
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland



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Report # 020

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Introduction: The U.S. Army Medical Material Agency (USAMMA) serves as the Army Medical Department's (AMEDD) strategic level medical logistics organization. USAMMA's mission is to enhance the medical material readiness throughout the full range of military health service support missions worldwide. In this role USAMMA develops and implements innovative logistics concepts and technologies as well as promoting military and medical logistics information and knowledge.

The agency's core skills and technologies center on conducting life cycle management for commercial and non-developmental items, sustaining and modernizing the medical force, supporting exercises and contingency operations and disseminating medical logistics information and knowledge. Two of USAMMA's critical groups tasked with this mission are the Maintenance Engineering Operations Directorate (MEOD) and the Technology Support Division (TSD). The MEOD is responsible for the maintenance of all the medical equipment while the TSD is responsible for ensuring the medical technology is sustainable and meets current and future utilization requirements.

In order to enhance the strengths of MEOD and TSD, USAMMA has contracted, (contract # DAMD17-01-D-0004), with McAdams Technologies Inc., (subcontracted to Information Systems Support Inc. March 2001), to develop and implement a sample data collection program for targeted medical devices. The overall focus of this program is to assist USAMMA in supplying medical field equipment, and DEPMEDS facilities with current, and sustainable medical technology in a fiscally efficient manner.

Scope: This document, the twentieth Sample Data Collection (SDC) report, includes the results of an SDC visit to the Sierra Army Depot in Herlong, California performed by the Technology Support Division (TSD) and also the results of a Medical Equipment Assessment of a Separate Infantry Brigade (SIB) Medical Company by the Maintenance Engineering Operations Division (MEOD).

Technology Support Issues

The following equipment and technology article is a continuation of the results of the August SDC visits to units in California. This report covers the second week of the trip.

Results of SDC Visit to Sierra Army Depot, Herlong, California

Robert Zak, Clinical Engineer Consultant, an employee of ISS, Inc., under contract to the US Army Medical Materiel Agency, visited the Sierra Army Depot, Herlong, California, August 11 through 15, 2003 to conduct a Sample Data Collection (SDC) survey.

SDC information gathering was conducted during a maintenance cycle on medical equipment shipped to and/or stored at the Sierra Army Depot. The equipment was supposed to meet up with the 396th Combat Support Hospital (CSH), which was scheduled to deploy in support of Operation Iraqi Freedom (OIF). The CSH never deployed. Alternatively, the equipment was going to be tested by medical maintenance personnel and then forwarded to other units to meet other requirements.

This was an excellent opportunity for SDC data gathering. Much of the equipment was newer items and have been operationally tested but never used in the field so they were packaged with all their supplies and accessories intact. Photographs were taken on a variety of equipment as well as the accessories and supplies packed along with the equipment as applicable. Some equipment items came in reusable shipping containers (Hardigg or Pelican-type cases) while other equipment was packaged in cardboard shipping containers, which may pose problems with re-packing in the future once the cardboard containers deteriorate or get thrown away.

Photographs for the SDC database. Photographs for the database were taken of the following items: Alaris Medsystem III infusion pump (National Stock Number (NSN) 6515-01-486-4310), PMC laboratory heated stirring plate (NSN 6640-01-291-8390), Beckman-Coulter A^cT 10 Hematology Analyzer (NSN 6630-01-468-9142), Draeger Medical Narkomed M anesthesia unit (NSN 6515-01-457-1840), CONMED Excalibur Plus electrosurge (NSN 6515-01-424-0672), Marvel refrigerator-freezer (NSN 4110-01-425-8009), Abaxis Piccolo Chemistry Analyzer (NSN 6630-01-415-1593), iSTAT hematology analyzer (NSN 6630-01-411-2405), Getinge-Castle 2410 MBS field surgical light (NSN 6530-01-468-9892), BCI Pulse oximeters, both the older, model 3040G (NSN 6515-01-293-5577) and the newer model 3303 (NSN 6515-01-446-6766), Diatek 600 thermometer (NSN 6515-01-313-6242), Becton Dickinson Dynac II centrifuge (NSN 6640-01-163-4214), Propper laryngoscope set (NSN 6515-01-286-1010), Ohmeda 7000 ventilator (NSN 6515-01-383-0922), Revco mechanical freezer (NSN 4110-01-450-0060), and Impact 326M suction apparatus (NSN 6515-01-435-0050). Also included is a photograph of an infusion pump test setup used for testing the output of the Medsystem III.

Alaris Medsystem III infusion pump, NSN 6515-01-486-4310. The pumps, as shown in Figure 1, are shipped in a cardboard box with custom molded foam so the units are secure during shipment. These are meant as one-time shipping containers and are not designed for multiple field deployments. The administration sets shipped with each of the pumps, as shown in figure 2, include one case (50 each) of 20 drop, two injection port sets, part number 28034, and one case (100 each) of 20 drop secondary sets, part number 72213N, with male luer lock and hanger.



Figure 1. Alaris Medsystem III



Figure 2. Infusion Pump Administration Sets

PMC Hot plate/stirring unit, NSN 6640-01-291-8390. The laboratory hot plate/stirrer, as shown in figure 3, was interesting. In order to meet the government's requirement to operate on dual voltage (120/240 volt AC), the manufacturer included a step-down transformer with their unit. The weight of the transformer was actually more than the weight of the stirring unit. The same method of meeting dual voltage requirement was used by the Marvel Refrigeration Company. They installed a step-down transformer (with proper power rating) into the lower part of the refrigerator and if used on European voltage, the user had to plug the transformer into the a power receptacle and then plug the refrigerator power cord into the transformer receptacle. Adequately sized step-down transformers are quite heavy so if looking to lower shipping weight of assemblages, it makes sense to actually evaluate the need for a dual voltage requirement so heavy transformers that might never be used can be eliminated or a supply of transformers be pre-positioned and shipped only if necessary. In the figure below, the heating stirrer is shown along with the extra transformer and the magnetic stirring pellet that is placed in the liquid to be stirred.



Figure 3. PMC Hot Plate, Stirrer

Beckman Coulter A^cT 10 Hematology Analyzer, NSN 6630-01-468-9142. The unit came with a large number of supplies including a number of various lengths of tubing that apparently have to be user-installed in the field in order to make the unit operational. Also, it requires a diluent and a waste container to be shipped along with it with for operation. Shown in figure 4 is the waste container, AcT Tainer solution, power conditioner and portable printer.

Figure 4. Accessories for A^cT 10

Draeger Narkomed M Anesthesia Unit, NSN 6515-01-457-1840. Although the labels can't be read in this picture, the case for the Narkomed M anesthesia unit is organized and labeled so parts are not only packed properly from the manufacturer, they can also be repackaged into the same configuration after a deployment or maintenance cycle. This is excellent for putting repackaging the units in a standardized fashion. If a section is left empty, it is a good indication that part may be missing. Figure 5 is a picture of the cutouts and labels for one of the Narkomed cases. Each anesthesia unit is packed into two similar containers that connect together for shipping. Figure 6 is a picture of a Narkomed M field anesthesia unit set up for operational and calibration checks. The biggest drawback from the view of the maintainers about the unit is the large number of checkout procedures required to verify calibration.



Figure 5. Narkomed Case with Cutouts and Labels



Figure 6. Narkomed M

CONMED Excalibur Plus electrosurge unit, NSN 6515-01-424-0672. These were new equipment items. The following are pictures of the supplies and accessories that were ordered along with the units. Figure 7 is a picture of the electrosurge unit along with power cord for use on 115 volt power as well as power cable and fuses for conversion for use on a 230 volt power source.

Figure 8 is a picture of the monopolar footswitch with connecting cable while figure 9 is a picture of a bipolar footswitch (right) and package with two (2) bipolar cables.



Figure 7. Excalibur Plus



Figure 8. Monopolar Footswitch and Connecting Cable



Figure 9. Bipolar Footswitch and Bipolar Cables

Figure 10 shows bipolar forceps on the left and reusable hand pieces on the right. The hand pieces have removable electrode blades.



Figure 10. Bipolar Forceps & Hand Pieces

Marvel Industries refrigerator-freezer, NSN 4110-01-425-8009. Figure 11 is a photograph of a Marvel Industries 4.5 cubic foot refrigerator-freezer in olive green, model 61RF0600. The NSN of the unit is 4110-01-425-8009. The unit runs on either 115 volt AC or 230 volt AC. Marvel included a step-down transformer in the unit and when used on 230 volt AC power, the user has to plug the refrigerator power cord into the transformer and then plug the transformer into an outlet that will accept a European-style plug.



Figure 11. Marvel Industries Model 61RF0660 Refrigerator-Freezer

Abaxis Piccolo Clinical Chemistry Analyzer, NSN 6630-01-415-1593. Figure 12 is a picture of the Piccolo with power supply cord while figure 13 are the accessories that ship with the unit. Included is a box of 96 sampler tubes, a Phillips head screwdriver, ten green-stopper Vacutainers, a 100 ml pipette for use with the sampler tubes, and two packages of adhesive labels for labeling the samples.



Figure 12. Abaxis Piccolo



Figure 13. Piccolo Accessories

iSTAT Clinical Portable Analyzer, NSN 6630-01-411-2405. The i-STAT Portable Clinical Analyzer (PCA) is used in conjunction with disposable cartridges for determination of a variety of parameters in whole blood. The analyzer stores up to 50 patient records and permits on-screen viewing of test results as well as transmission of records to a data management system using infrared signals. Figure 14 shows the makeup of a complete unit except for the cartridges that don't ship with the unit because they are a shelf-life item. The units came with an infra-red (IR) link kit, part number 112210; electronic simulator, part number 130100; two 9-volt alkaline batteries, no part number; and IR printer, Hewlett-Packard number 82240B.



Figure 14. iSTAT & Accessories

Getinge-Castle 2410 MBS Field Surgical Light, NSN 6530-01-468-9892. Figure 15 is a photograph of the Getinge-Castle 2410 MBS Field Surgical Light. The unit comes self-contained in a reusable shipping container.



Figure 15. Getinge-Castle Surgical Light

BCI Pulse Oximeters, Model 3040G (NSN 6515-01-293-5577) and Model 3303 (NSN 6515-01-446-6766). Although the BCI model 3040G pulse oximeters are being replaced by the BCI model 3303, there are still a number available in nearly new condition (only taken out of storage for periodic preventive maintenance). See figure 16. Included with the unit are adapters for monitoring either blood oxygen saturation with the finger probe or attached to the earlobe. Figure 17 shows the BCI 3303 pulse oximeter along with manuals and accessories.



Figure 16. BCI 3040G Pulse Oximeter



Figure 17. BCI 3303 Pulse Oximeter

Diatek 600 thermometer, NSN 6515-01-313-6242. The thermometer, shown in figure 18, comes complete with technical manual, oral and rectal reusable probes, and a supply of 1000 disposable probe covers.



Figure 18. Diatek 600 Thermometer System.

Becton Dickinson Dynac II centrifuge, NSN 6640-01-163-4214. Figures 19 and 21 show the Dynac II centrifuge with rotor and rotor accessories. The item shown is a limited support item (ALSI) but this particular unit has never been used and has only had periodic maintenance performed.



Figure 19. Dynac II in Shipping Box



Figure 20. Dynac II Rotor and Accessories

Propper Laryngoscope Set, NSN 6515-01-286-1010. The set, as shown in Figure 21, comes in a reusable case and consists of two Propper blades, five Macintosh blades, five Miller blades, two “C” size batteries to

operate the light bulb in the included large handle and two “AA” size batteries to operate the light bulb in the small handle.



Figure 21. Propper Laryngoscope Set

Ohmeda Model 7000 Ventilator, NSN 6515-01-383-0922. These ventilators are designed for use with the Ohmeda 885A field anesthesia units. Even though the 885As are being replaced, the ventilators aren't being taken out of service when the new anesthesia unit is fielded. See figure 22.



Figure 22. Ohmeda 7000 Ventilator

Revco Technologies Mechanical Plasma Freezer, NSN 4110-01-450-0060. The unit shown in figure 23 uses R404A refrigerant. It ships with manuals, temperature recorder and glycol solution (see figure 24), and temperature power monitor (see figure 25). Also included is a year supply of paper recording charts (not shown).



Figure 23. Revco Mechanical Plasma Freezer



Figure 24. Chart Recorder and Glycol Solution.



Figure 25. Temperature Power Monitor

Impact Instrumentations Model 326M Suction Apparatus, NSN 6515-01-435-0050. The Model 326 is a multifunction, continuous and programmable intermittent suction unit. Built around Impact's ultra-lite[®] vacuum pump. The Model 326 may be used for oropharyngeal, tracheal, wound drainage, and abdominal or thoracic decompression procedures - short or long-term use. Its supplied accessories permit continuous use from AC or DC power, and internal rechargeable batteries provide power for several hours of transport or emergency backup. Figures 26 and 27 show the suction apparatus in its reusable shipping container as well as accessories and supplies normally purchased with the unit.



Figure 26. Impact 326M Portable Suction



Figure 27. Impact 326M Consumables and Accessories

Infusion pump output test setup (no NSN). Figure 28 shows the unique testing setup for performing a maintenance and calibration check on an Alaris Medsystem III infusion pump. The setup is capable of running two output tests at the same time.



Figure 28. Infusion Pump Output Tester

MEOD Issues

The following maintenance article for September is a continuation of travel performed during the month of August.

Medical Maintenance Data Collection to a Separate Infantry Brigade (SIB) Medical Company

Kevin Culihan, Biomedical Equipment Consultant, an employee of ISS, Inc., under contract to the US Army Medical Materiel Agency, assisted the National Maintenance Point with the following visit and survey.

The US Army Medical Materiel Agency (USAMMA) National Maintenance Point (NMP) conducted a medical maintenance data collection and assistance visit to the SIB Medical Company during August 2003. The data gathered clearly identifies that the maintenance of medical equipment at the SIB is seriously deficient. The medical maintenance team from Evans Army Community Hospital, Ft Carson, provided a cursory equipment service and assessment for the medical company's medical equipment. The team was able to assess the status of 20 medical equipment items. Of the 20 items assessed, 16 items, **(80%)** were determined to be Non-Mission Capable (NMC).

The areas reviewed included: Medical Equipment Maintenance Management and Performance; Operator Maintenance Performance; Test, Measurement, and Diagnostic Equipment (TMDE) and Tools Management; and Medical Equipment Repairer Training Sustainment.

Medical Equipment Maintenance Management and Performance

1. The medical equipment repairer (school trained, MOS qualified 91A) does not have any reference material nor did he possess the knowledge of how or where to gain access to it.

The repairer was provided with a CD containing some pertinent Regulations, DA Pamphlets, and government forms, and the availability of maintenance related information and links from the USAMMA home page. He was also provided with a copy of SB 8-75-S10 which addresses ARNG responsibilities for medical maintenance.

2. The organization does not have the maintenance literature available for their medical equipment.

The SIB, Medical Company medical equipment repairer needs to perform an all-inclusive inventory of the Unit's medical equipment by manufacture and model. USAMMA may be able to provide assistance in obtaining the appropriate service literature. Additionally, the repairer was provided a CD with some equipment literature. However, the repairer does not have a computer to view the CD.

3. The repairer is unfamiliar with the equipment in the Unit's inventory, and does not know which equipment items in the Unit's inventory are required to be serviced on a routine basis.

The repairer was provided a list, based on the Unit's requirements document, of medical equipment densities by medical, dental, and optometry equipment set that are required to be managed in a comprehensive maintenance management program.

4. The organization does not have any procedures in place, manual or automated, to monitor or manage medical equipment repairs or services (PMCS). The unit does not have any Equipment Maintenance and Inspection Worksheets (5988-E for ULLS) and/or DA 2404 on hand reflecting any maintenance service for any of its medical equipment. Unit level maintenance services are not being performed by the repairer.

The equipment repairer was provided copies of forms (DA Form 2404, DA Form 2409, DD Form 314) and instruction on the preparation, use, and record keeping. Suggested to the repairer that he get a copy of TB 38-750-2, Maintenance Management Procedures for Medical Equipment to assist him with implementing appropriate maintenance management procedures.

5. The maintenance section does not have an internal SOP.

Expressed to the medical equipment repairer the importance of having established procedures outlining how the medical maintenance section intends to provide medical equipment maintenance to his Unit's medical equipment. Currently there is no unit level maintenance program.

6. The repairer does not know with which unit to schedule or receive his next higher level of maintenance support.

Suggested to the maintainer that the IMSA from which the unit receives its medical supply support should be providing their direct support maintenance.

7. The Commander has not published a maintenance directive delineating supervisor responsibility. Additionally, there is no emphasis placed on equipment and operator maintenance per AR 750-1 and TB MED 750-1.

Informed the commander (COC took place the day of out brief) that much of the medical equipment belonging to the unit is not mission capable (NMC) and that without command emphasis the deficiency will continue.

8. The maintenance section is not providing input concerning the readiness of medical equipment to the Unit's DA Form 2406. Several 2406 reportable items of equipment are NMC, however this information is not being reported.

The medical equipment repairer was provided a list of medical equipment items that are 2406 reportable. He was also provided a copy of DA Form 2406 and AR 700-138.

Operator Maintenance

9. The unit does not have an operator maintenance program.

Discussion with the Commander and First Sergeant emphasized the importance of a comprehensive maintenance program and the requirement for supervisors and equipment operators to be involved. Operator level maintenance is the key to a functional maintenance program. Additionally, it enhances the operator's familiarity with the Unit's medical equipment.

10. The operators are unfamiliar with the equipment in the Unit's inventory. To further degrade the Unit's readiness, several sections are managed by personnel who are not MOS qualified and possess little or no knowledge of the equipment required, on hand, or serviceability.

The Commander and First Sergeant are aware of the Unit's shortage of MOS qualified personnel. Shortage of resources has severely inhibited the Unit's efforts to resolve this dilemma.

11. The organization does not have operator literature on hand for their medical equipment.

The SIB, Medical Company section leaders and operators need to perform an all-inclusive inventory of the Unit's medical equipment by manufacture and model. USAMMA may be able to assist the unit in obtaining the appropriate operators literature.

Test, Measurement, and Diagnostic Equipment (TMDE) and Tools Management

12. The unit has the TMDE to support the medical equipment authorized based on the database they were fielded.

In the event the unit medical equipment is modernized, the USAMMA has programmed to provide the necessary TMDE to support the modernized equipment.

13. The TMDE on hand was unable to be evaluated for calibration. The TMDE was recently turned in for service.

Provided instruction on how to get their TMDE-SP serviced by USAMMA's MMOD, San Joaquin Army Depot. The point of contact for TMDE-SP calibration is MMOD, Tracy (Nellie Perton) (209) 839-4557; DSN 462.

14. Table 1 is a list of equipment that was assessed by the maintenance team sent from Evans Army Community Hospital, Fort Carson, findings for those items and whether an assessment of mission capability.

Table 1. Equipment assessments.

| Item | Finding | Mission Capability |
|---------------|---|---------------------------|
| Defibrillator | Battery needs to be replaced | NMC |
| Defibrillator | Battery needs to be replaced | NMC |
| Monitor | Battery needs to be replaced | NMC |
| Monitor | Battery needs to be replaced | NMC |
| Suction App | Checked out Serviceable | Mission Capable |
| Suction App | Equipment dirty, Battery needs to be replaced | NMC |

| Item | Finding | Mission Capability |
|---------------------|---|------------------------|
| Suction App | Equipment dirty, Battery needs to be replaced | NMC |
| Suction App | Equipment dirty, Battery needs to be replaced | NMC |
| Suction App | Equipment dirty, Battery needs to be replaced | NMC |
| Suction App | Equipment dirty, Battery needs to be replaced | NMC |
| Suction App | Equipment dirty, Battery needs to be replaced | NMC |
| Microscope | Checked out Serviceable | Mission Capable |
| Microscope | Checked out Serviceable | Mission Capable |
| Microscope | Checked out Serviceable | Mission Capable |
| Slit Lamp | Incomplete | NMC |
| Light Head Surgical | Incomplete | NMC |
| Edging Machine | Unable to service, no literature | NMC |
| Sterilizer | Excessive dirt and grunge; status undetermined | Unknown Mission Impact |
| X-Ray App | Turned in for service | NMC |
| Refrigerator | Excessive dirt and grunge; does not power up and run properly | NMC |
| Refrigerator | Excessive dirt and grunge; does not power up and run properly | NMC |
| Refrigerator | Excessive dirt and grunge; does not power up and run properly | NMC |
| Sink | Not evaluated; the sink on hand is no longer supportable | Unknown Mission Impact |
| Sink | Not evaluated; the sink on hand is no longer supportable | Unknown Mission Impact |

Medical Equipment Repairer Training Sustainment

15. The unit does not have a training sustainment program.

Although the National Guard has a limited number of days available for the maintenance and sustainment of the Unit's medical equipment and equipment repairer skills, it is imperative that the leadership be persistent in establishing and maintaining some sort of equipment maintenance and sustainment training program for the equipment repairer and operators.

16. The USAMMA has recently set in motion the National Maintenance Sustainment initiative that includes providing maintenance services and assistance to Army (TOE) organizations authorized medical

equipment. A team of medical equipment repairers from USAMMA had recently been to Arkansas to provide maintenance assistance to NG medical organizations in the state. However, due to inadequate coordination, the lack of knowledge of the Unit's assets, and the lack of involvement of the Unit's key personnel during the team's visit, most of the medical equipment was not available thus did not get maintained or serviced.

Proper planning and coordination must be foremost in the accomplishment of all undertakings. Without the fervent involvement of the commander, section leaders and supervisors; the medical equipment repairer; and the equipment operators; the ability to coordinate and execute the sustainment initiative and enhance each Unit's readiness capability most certainly will prove more protracted than initially expected.

17. The point of contact for additional information is Mr Kevin B. Culihan @ 301-619-4381.

Sample Data Collection Monthly Report October 2003



Submitted to:
U.S. Army Medical Materiel Agency
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland



Prepared by:
Information Systems Support Inc.
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Report # 021

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Introduction: The U.S. Army Medical Material Agency (USAMMA) serves as the Army Medical Department's (AMEDD) strategic level medical logistics organization. USAMMA's mission is to enhance the medical material readiness throughout the full range of military health service support missions worldwide. In this role USAMMA develops and implements innovative logistics concepts and technologies as well as promoting military and medical logistics information and knowledge.

The agency's core skills and technologies center on conducting life cycle management for commercial and non-developmental items, sustaining and modernizing the medical force, supporting exercises and contingency operations and disseminating medical logistics information and knowledge. Two of USAMMA's critical groups tasked with this mission are the Maintenance Engineering Operations Directorate (MEOD) and the Technology Support Division (TSD). The MEOD is responsible for the maintenance of all the medical equipment while the TSD is responsible for ensuring the medical technology is sustainable and meets current and future utilization requirements.

In order to enhance the strengths of MEOD and TSD, USAMMA has contracted, (contract # DAMD17-01-D-0004), with McAdams Technologies Inc., (subcontracted to Information Systems Support Inc. March 2001), to develop and implement a sample data collection program for targeted medical devices. The overall focus of this program is to assist USAMMA in supplying medical field equipment, and DEPMEDS facilities with current, and sustainable medical technology in a fiscally efficient manner.

Scope: This document, the twenty-first Sample Data Collection (SDC) report, includes an article on several different models of Valleylab electrosurgical generators that are found in the Army inventory and a standardized list of supplies and accessories that should be ordered with each. Also, there is a human factors assessment of a Hardigg Case medical chest prototype that was submitted to USAMMA and was analyzed by the CSEA team. Finally, this report contains some general information on a battery-operated blood draw monitor that was identified as a replacement for a mechanical blood balance that is no longer manufactured and cannot be procured.

Technology Support Issues

The following equipment and technology issues were addressed during October.

Electrosurge units purchased without supplies and accessories

Valleylab Force 2 Electrosurgical Apparatus, NSN 6515-01-309-6647

Valleylab Force FX Electrosurgical Apparatus, NSN 6515-01-498-9729

Valleylab Force 1C, No NSN assigned

There was an issue where multiple models of electrosurge units from Valleylab were procured without supplies and accessories. The approved model that should be ordered is the Force 2 however Force FX and Force 1Cs have been purchased. Valleylab has standardized their equipment connections so accessories used with the Force 2 can be used with the other electrosurgical generators in the inventory. Table 1 contains the supplies and accessories that are normally ordered along with the Force 2 and for standardization purposes, should be ordered with other Valleylab electrosurgical generators.

The Force 2 electrosurgical unit, shown in figure 1, provides both cutting and coagulation in monopolar and bipolar outputs. Simultaneous independent coagulation permits two surgeons to fulgurate from a single generator. Accessories are activated only when keyed, reducing the potential for injury caused by inadvertent activation. Preset blended cutting modes provides optimum hemostasis during cutting. The Force 2 provides Return Electrode Monitoring (REM) substantially reducing the risk of patient burns at the return electrode site. 300 Watts output in cut mode. Monopolar footswitch included. The Valleylab Force 2 accepts all standard Valleylab accessories to help meet the surgeon's needs, in a wide range of general procedures, and in specialties including gynecology, urology, thoracic, and plastic and reconstructive surgery. Low voltage coagulation ensures controlled desiccation with less destruction of peripheral tissue, making the Force 2 generator ideal for laparoscopic procedures. The Force 1C electrosurgical unit provides both cutting and coagulation in monopolar and bipolar outputs. The Force FX



Figure 1. Force 2 Electrosurge Unit

The Force FX™ generator, shown in figure 2, uses Instant Response™ Technology to ensure consistent clinical performance using less power. Valleylab Instant Response™ system is smart™ generator technology. It utilizes computer-controlled output for automatic response to changes in tissue impedance, reducing the need to adjust power settings for different types of tissue. Improved performance at lower voltages reduces sparking, thermal spread, neuro-muscular stimulation and RF interference. Cutting, coagulating and bipolar outputs are designed for laparoscopic surgery. Low cut and Low coag outputs use lower voltages to reduce the risks of electrosurgery. Macrobipolar mode is designed specifically for today's new generation of macrobipolar cutting instruments. Valleylab REM™ safety minimizes the risk of patient

burns at the return electrode site. The Valleylab REM™ contact quality monitoring system has been proven safe in over 100 million procedures. Three cut modes offer a choice of Low cut for delicate tissue or laparoscopic cases, Pure for a clean, precise cut in any tissue, and Blend for cutting with hemostasis. All cut modes are controlled by the Instant Response™ system. Three coag modes include Low/Desiccate for low voltage contact coagulation suitable in laparoscopic and delicate tissue work. Medium/Fulgurate for efficient noncontact coagulation in most applications, and High/Spray for coagulating large tissue areas with minimum depth of necrosis. Three bipolar modes, Low/Precise, Medium/Standard, and Macrobipolar are also controlled by the Instant Response™ system. Low and medium settings utilize low voltage to prevent sparking.



Figure 2. Force FX Electrosurge Unit

As flexible as today's surgical setting the Force™ 1C has a streamlined, compact design perfect for the requirements of outpatient surgery as well as the power and performance features needed for a full range of general inpatient surgical procedures. Three Blended Cut Modes provide flexibility with varying degrees of hemostasis in the cut modes. Quick set up features reduce the need for readjustment between procedures. Microbipolar and monopolar modes are set independently, and the digital display allows easy confirmation of power levels. Isolated output design directs current return to the generator, reducing the risk of alternate site burns. REM™ Safety is guaranteed with Valleylab's REM™ Contact Quality Monitoring System, which continually monitors the return pad/patient contact quality. If a fault is detected, the REM™ system automatically deactivates the generator - virtually eliminating the risk of burns under the return electrode. Valleylab REM™ safety has been proven in more than 100 million surgical procedures.



Figure 3. Force 1C Electrosurge Unit

Table 1. Valleylab electrosurgical unit consumables and accessories.

| NSN | Nomenclature | PN | QTY | UI | Unit Price | Total Price | MFG | Shelf Life, months | Refrig Y/N |
|------------------|--|---------|-----|----------|------------|-------------|----------------------------------|--------------------|------------|
| 6515-01-487-8238 | Universal Cart | UC8009 | 1 | EA | \$595.00 | \$595.00 | Tyco Healthcare DBA Valleylab | Indef | N |
| 5930-01-328-2275 | Monopolar Footswitch | E6008 | 1 | EA | \$345.00 | \$345.00 | Tyco Healthcare DBA Valleylab | Indef | N |
| | Bipolar Footswitch | E6019 | 1 | EA | \$108.15 | \$108.15 | Tyco Healthcare DBA Valleylab | Indef | N |
| | Polyhesive II cordless pad | E7509 | 1 | 50 PG | \$117.50 | \$117.50 | Tyco Healthcare DBA Valleylab | Indef | N |
| | Clamp/cord assembly | E0560 | 1 | EA | \$44.03 | \$44.03 | Tyco Healthcare DBA Valleylab | Indef | N |
| 6515-01-506-8663 | Forcep uninsulated 7 3/4" bayonet | E4080 | 1 | EA | \$308.23 | \$308.23 | Tyco Healthcare DBA Valleylab | Indef | N |
| | Bipolar forceps cord | DQ12401 | 1 | EA | \$78.00 | \$78.00 | Tyco Healthcare DBA Valleylab | Indef | N |
| 6515-01-221-9399 | Disposable handswitch pencil w/holster | E2515H | 1 | 50 PG | \$162.00 | \$162.00 | Tyco Healthcare DBA Valleylab | Indef | N |
| | Extended coated blade | E14506 | 1 | 50 PG | \$267.50 | \$267.50 | Tyco Healthcare DBA Valleylab | Indef | N |
| | Coated needle electrode | E1452 | 1 | 50 PG | \$242.50 | \$242.50 | Tyco Healthcare DBA Valleylab | Indef | N |
| | Edge insulated coated blade | E1455 | 1 | 50 PG | \$257.50 | \$257.50 | Tyco Healthcare DBA Valleylab | Indef | N |
| | Edge insulated blade w/sleeve 2.75" | E1455B | 1 | 25 PG | \$265.00 | \$265.00 | Tyco Healthcare DBA Valleylab | Indef | N |
| 6515-01-109-8537 | Lectrogel, 10 tubes per box | E5501 | 1 | 10 PG | \$97.80 | \$97.80 | Tyco Healthcare DBA Valleylab | Indef | N |
| | Active Adapter | E050212 | 1 | EA | \$44.03 | \$44.03 | Tyco Healthcare DBA Valleylab | Indef | N |

Medical Chest Prototype by Hardigg Cases. This article is based on the results of an evaluation of a prototype medical chest made by Hardigg Cases. It is not an endorsement for or a vote against the item but an assessment of human factors issues that may make it a less than desirable candidate for fielding. It also isn't meant as an in-depth evaluation but captures the shortfalls readily apparent during inspection by the Combat Support Equipment Assessment (CSEA) team of the Technology Support Division (TSD) section of USAMMA. The first observations is the chest, even when empty, is heavy. It most definitely requires a two-person lift. Next, the chest only has two handles, one on either end of the chest, once filled with supplies, it may be difficult to carry if the load isn't distributed evenly. An unbalanced load could cause twisting and undesirable pressure to the soldiers carrying the case. The wheels may be too small to be helpful in a field environment but larger diameter wheels could interfere with nesting and shipping of the cases. The lid is attached by way of four, double-knuckle hinges. This does not seem optimal, as there is enough play in the hinges that will lead to bending, which may make closing the lid troublesome after spending some time in the field. The prototype chest already has a bent hinge and it has not been used in the field yet. Figure 1 is a picture of the side view of the chest with the lid closed and showing the double-knuckle hinges. It may be better to allow the lid to be removed entirely during setup.

Figure 2 shows the sleeves and several drawers. The drawer system did not appear to be well designed. Notice the sleeves are already bowed and yet the drawers are empty. Notice also the extra space between the drawer and the sleeve and between the drawer and the top of the container. There is extra space at the top of each drawer as well as on the sides. Depending on what supplies are in the chest, keeping them stored in an orderly manner could be an issue during shipment with the lack of tighter-fitting drawers.



Figure 4. View of chest showing hinged lid



Figure 5. View of chest showing sleeves and drawers



Figure 6. View of chest showing lid open and foam in lid

With the drawers filled with supplies, the sleeves will probably sag more and possibly compromise drawer operation. There are also no glides for the drawers and no stops to keep the drawers from falling out should they be pulled out too far. Figure 3 shows the chest with the lid opened. The lid can be folded flat against the side of the chest if several other chests are lined up side by side or can remain available for securing the chest when not needed to keep dust, insects, and animals out of the supplies.

HemaFlow 200 Blood Draw Monitor. There was a request from the field to identify a replacement for an obsolete piece of equipment. The item requiring replacement is a mechanical blood balance, NSN 6515-00-584-2926 that was manufactured by Baxter Healthcare and is used in blood donation units to determine when sufficient blood has been taken from a donor and automatically stops the collection process. The mechanical balance is a robust piece of equipment and has a long serviceable life. Baxter has discontinued the mechanical blood balance but replaced it with an electronic monitor that serves the same function, the HemoFlow 200 Blood Draw Monitor, part number 4R4456 (see Figure 4). The HemoFlow 200 Blood Draw Monitor is a lightweight, battery powered blood draw monitor, which is designed to assist in the collection of whole blood. This accurate, portable blood collection system features programmable collection volume, automatic flow monitoring with audible and visual alarms, and automatic clamping upon the completion. The monitor operates on 4-AA alkaline batteries and the manufacturer reports the batteries last for up to 3 months at a rate of 50-60 procedures per day.



Figure 4. HemaFlow 200

In addition to the blood flow monitor, an optional transport case should be ordered, one for every 4 monitors in a unit. If the allowance of monitors isn't divisible by 4, an additional case should be ordered for the odd lot. The transport case has a part number of 4R4458 and is shown in Figure 5. The HemoFlow 200 Transport Case offers protection and allows up to four HemoFlow 200 Blood Draw Monitors to be easily transported.



Figure 5. HemaFlow Transport Case

MEOD Issues

There were no MEOD Issues submitted for October.

Sample Data Collection Monthly Report November 2003



Submitted to:
U.S. Army Medical Materiel Agency
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland



Prepared by:
Information Systems Support Inc.
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Report # 022

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Introduction: The U.S. Army Medical Material Agency (USAMMA) serves as the Army Medical Department's (AMEDD) strategic level medical logistics organization. USAMMA's mission is to enhance the medical material readiness throughout the full range of military health service support missions worldwide. In this role USAMMA develops and implements innovative logistics concepts and technologies as well as promoting military and medical logistics information and knowledge.

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In order to enhance the strengths of MEOD and TSD, USAMMA has contracted, (contract # DAMD17-01-D-0004), with McAdams Technologies Inc., (subcontracted to Information Systems Support Inc. March 2001), to develop and implement a sample data collection program for targeted medical devices. The overall focus of this program is to assist USAMMA in supplying medical field equipment, and DEPMEDS facilities with current, and sustainable medical technology in a fiscally efficient manner.

Scope: This document, the twenty-second Sample Data Collection (SDC) report, includes the results of research conducted on locating dual-voltage medical equipment for a USAMMCE requirement. Eight equipment items were investigated. Also included is an MEOD report from an assistance visit to the 380th Dental Company, Memphis, Tennessee on the unit's readiness state.

Technology Support Issues

The following equipment and technology issues were addressed during November.

Results of research on dual voltage medical equipment for USAMMCE

The following information was gathered in response to a request from USAMMCE asking for recommendations on a number of non-expendable medical equipment items needed to set up medical treatment facilities in Iraq. The request specifically asked for items that could operate on dual voltage (both 120 volt/60 Hz and 240volt/50 Hz). What was found, however, is that the commercially available products are available in either 120-volt or 240-volt configurations but not both as requested.

The following is a list of the non-expendable equipment requirements:

1. 6650-01-207-0829, Microscope binocular “W”
2. 6640-01-172-1132, Rotator lab variable speed “W”
3. 6640-01-187-6621, Bacteriological Incubator CO2 “W”
4. 6640-01-205-2423, Centrifuge Lab General Purpose “W”
5. 6640-01-463-0086, AutoSCAN-4 Microbial Id System “J”
6. 6640-01-498-4194, Cabinet Biological Safety “L”
7. 4110-01-204-2673, Refrigerator, mechanical biologicals, explosion-proof “W”
8. 6640-01-176-7613, Shaking Machine Laboratory “W”

1. Microscope binocular, “W” NSN 6650-01-207-0829.

There were three “J” NSNs identified for this microscope. The Nikon model Labophot, NSN 6650-01-293-7240, is obsolete and is no longer available. The Olympus 21212, NSN 6650-01-406-1828, is a complete system that consisted of the model BX40F3 and a number of accessories including objective lenses. This model is obsolete and was replaced by the BX41. However, Olympus no longer makes the microscope in kit configuration so all accessories and supplies including objective lenses have to be ordered separately. The Nikon Eclipse E400, NSN 6650-01-499-1784 is a current Nikon model and is the recommended model. Figure 1 is a picture of the Eclipse E400.



Figure 1. Nikon Eclipse E400 Microscope

Finding: NSN 6650-01-499-1784 is currently available. The light source is the only part of the microscope requiring power but is not available in dual voltage. The item under the “J” NSN comes with a 120-volt AC light source but a 240-volt AC light source could be ordered. The power requirement is very low so USAMMA’s recommendation is to purchase the 120-volt light source and a small step-down transformer if used on a 240-volt source.

2. Variable Speed Laboratory Rotator, “W” NSN 6640-01-172-1132

There were three “J” NSNs found under the “W” for the variable speed laboratory rotator. The Beacon Biologicals rotator, part number 3010, NSN 6640-01-498-3006, could not be located. Fisher Scientific catalog number 14-251-200, NSN 6640-01-326-1590, is a current model (see figure 2). The Barnstead model 1314, NSN 6640-01-431-5696, is listed in the UDR as manufactured by J and H Berge but was identified as a product of the Lab-Line Division of Barnstead International (see figure 3). It is a current and available model.

Finding: Fisher Scientific catalog number 14-251-200, NSN 6640-01-326-1590, is a current unit. However it is only available in 115 VAC, 50/60 Hz power source but it will work properly with a step-down transformer. The Barnstead model 1314, NSN 6640-01-431-5696, is still current but runs on 120 volts. Their part number 1314-ICE is the same item but configured to run on 240 volts. In any case, the 120-volt models can be run with step-down transformers.



Figure 2. Fisher Scientific Laboratory Rotator



Figure 3. Lab-Line Laboratory Rotator

3. Bacteriological Incubator CO₂, “W” NSN 6640-01-187-6621

There were three “J” NSNs identified for the CO₂ Incubator, all manufactured by the Lab-Line Division of Barnstead International. NSN 6640-01-262-0638, Part number 420 Govt is no longer available. Both the model 490, 6640-01-470-9099 and model 325, 6640-01-416-1385, are still available.

Finding: The model 490, shown in figure 4, runs on 120 VAC 50/60 Hz so this would work overseas with a step-down transformer. Ordering model 490-ICE would operate on 230 VAC, 50/60 Hz but would need a step-up transformer if ever used as a field unit. The same can be said for the model 325, shown in figure 5, which runs on 120 VAC, 50/60 Hz. Lab-Line model 325-1 would be the unit for use on 230 VAC, 50/60 Hz.



Figure 4. Lab-Line Model 490 CO₂ Incubator



Figure 5. Lab-Line Model 325 CO₂ Incubator

4. Centrifuge Lab General Purpose, “W” NSN 6640-01-205-2423

There are three “J” NSNs for this centrifuge. The Becton Dickinson Dynac II, NSN 6640-01-163-4214 is obsolete and no longer available. The Labnet International Model 6-C0230-19, NSN 6640-01-315-5382, is also obsolete and no longer available. The Thermo IEC Model 8464 as shown in figure 6, NSN 6640-01-499-0533, is a current model and is available.

Finding: The Thermo IEC Model 8464 is a current model but under this model number only runs on 120 Volts and 60 Hz. A step-down transformer is not recommended because speed, in many instances, is usually governed by the frequency so a unit set up to run on a power source generating 60 Hz would run slower if run on 50 Hz source. To order a unit that can run on 220-240 VAC, 50/60 Hz, purchase a Thermo IEC model 8465.

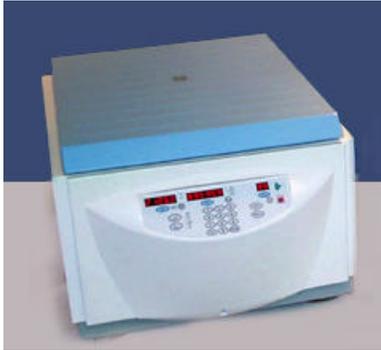


Figure 6. Thermo IEC Model 8464
General Purpose Centrifuge

5. Microbial Id System by Dade Behring, autoSCAN-4 system, catalog number B1018-502, “J” NSN 6640-01-463-0086

According to the manufacturer’s web site, this unit is available only in the US and this would probably preclude the item from being dual voltage. The autoSCAN®-4 system (shown in figure 7) reads, quantifies, interprets and reports panel results rapidly. Panels are incubated off-line then inserted into the instrument for consistent, standardized, identification and susceptibility evaluation.



Figure 7. Dade Behring AutoSCAN-4 with LabPro

6. Biological Safety Cabinet, “L” NSN 6640-01-498-4194



Figure 8. Purified Environments
Biological Safety Hood

Finding: The Model BBF-2(SS)-CH, shown in figure 8, cannot be purchased with dual voltage. The unit can be configured for 120 or 240 but the 120-volt model can be run in European voltage and frequency with a 500 Watt step-down transformer. The model number for both 120 volt and 240 volts is the same but must be specified when ordered. USAMMA’s recommendation is for USAMMCE to purchase the 120-volt model and use it in conjunction with a step-down transformer.

7. Explosion-proof laboratory refrigerator, “W” NSN 4110-01-204-2673

Finding: NSN 4110-01-131-2655 is for a Model 3559 from Lab-Line (see figure 9). It is not available in a dual-voltage model. This unit is available in 120 volt, 60 Hz (Model 3559) or 240 volt, 50 Hz (Model 3559-1). Because of the explosion-proof nature of the item, it is usually hard-wired to the electrical source directly rather than having a plug to avoid sparks, which is why it doesn’t come in a dual voltage configuration. The other two “J” NSNs found for the above “W” only come in 120 volt, 60 Hz models and aren’t recommended for operation on 50 Hz.



Figure 9. Lab-Line Explosion-
Proof Laboratory Refrigerator/
Freezer

8. Laboratory Shaking Machine, “W” NSN 6640-01-176-7613



Figure 10. Vortex Genie 2
Shaking Machine

Finding: There were two “J” NSNs identified for the above “W.” They both reference the same item, a Scientific Industries Vortex Genie 2 however NSN 6640-01-258-0006 is for the model G560 with provisioning while NSN 6640-00-926-1290 is without provisioning. They do not make a dual-voltage unit. Catalog number SI-0236 is their model G560, which is a 120 volt, 60 Hz model which is the reference number for the “J” NSN. To procure a unit that runs on 230 Volt, 50 Hz, order catalog number SI-0256 to purchase their model G560E, which includes a European-style plug. Figure 10 is a picture of the Vortex Genie 2.

MEOD Issues

The following maintenance article is a snapshot of an assistance visit made to the 380th Dental Company in Memphis, Tennessee. The visit was held on December 8, 2003.

Medical Maintenance Sample Data Collection of the 380th Dental Company

Andrew Aiken, Biomedical Equipment Technician, an employee of RTS-MED and under contract to the United States Army Reservist Command, assisted the National Maintenance Point with the collection of maintenance data at the 380th Dental Company. The US Army Medical Materiel Agency (USAMMA) collected the medical maintenance data. This data clearly shows the readiness state of the 380th Dental Company.

Chart 1. Medical Equipment Maintenance Management and Performance

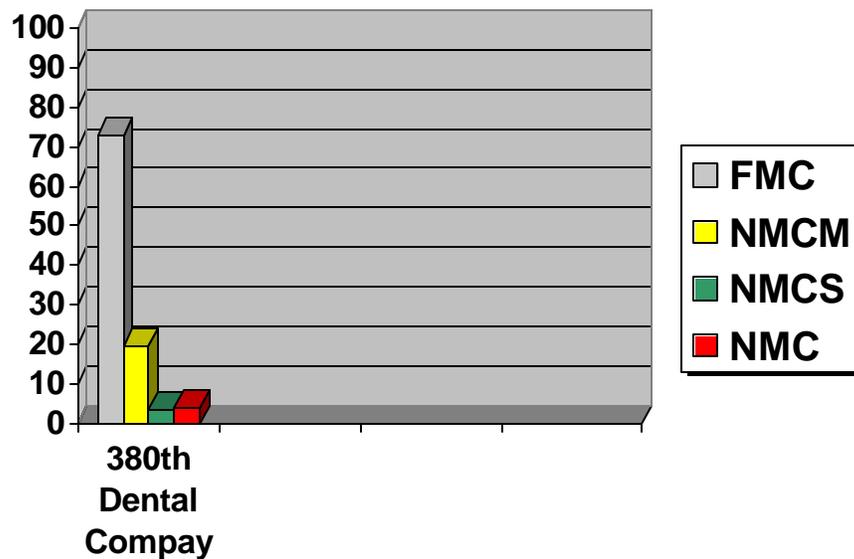


Chart Legend: FMC = Fully Mission Capable, NMCM = Non-Mission Capable Maintenance, NMCS = Non-Mission Capable Supply, NMC = Non-Mission Capable

FMC. The RTS-MED team of three technicians found 136 medical equipment items fully mission capable (FMC) out of 185 items. (**FMC 73.0 %**)

NMCM. 36 items were classified non-mission capable maintenance due to repairs needed to bring this equipment to FMC status. (**NMCM 19.45 %, see Table 1**)

Dental Chairs (13 items)

- Low in hydraulic fluid
- Case latches broken
- Arm pins missing

Dental Operation unit (7 items)

- Air regulator leaks

Dental lights (10 items)

- Replacement of springs
- Fuses

Dental compressor (1 item)

- Loader

Field Sinks (5 items)

- Outlet ports
- Pumps

NMCS. Six items classified non-mission capable supply (NMCS) out of 185 items. Two were repaired on-site at operator level and are not included in Table 2. (NMCS 3.24%)

Source of Supply Issues

- Parts not available
- Deployment window restrictions due to movement at Power Projection Platform.

NMC. Seven items classified non-mission capable (NMC), out of 185 items due to condition code H. Four additional dental lights were condition code H because of parts not being available before unit movement. (NMC 3.78%, see Table 2)

X-ray Apparatus (1 item)

- No longer supported, timer bad

Sterilizers (2 items)

- LED display bad
- Circuit board bad

Dental Light (2 items)

- Spring worn out in arm

X-ray Processor (1 item)

- Tank cracked

Sink field (1 item)

- Missing control incomplete

Summary: After analyzing the data collected, one end item was at the top of the list requiring high maintenance man-hours and repair parts. The dental lights had 20 work orders, 11 of them needed spring adjustments or replacement for models, LF-11 and 6300. This accounts for 55.55% of the workload. USAMMA recognizes this end item is a maintenance problem and is currently evaluating other sources. There is no recommendation at this time.

$$\text{Work Load (\%)} = \frac{\text{Number of lights requires spring Adjustments}}{\text{Total number of dental lights}} \times 100$$

The point of contact for additional information is Mr. Jamie J. Parks III @ 301.619.4381

Table 1. List of equipment identified as Non-Mission Capable--Maintenance (NMCM)

| Model | MFG | Nomenclature | Serial | Deficiencies |
|----------|------------------------------------|------------------|----------------|--|
| 3406 | A-DEC INC. | Dental Oper Unit | 1509796 | Needs new syringe |
| 3406 | A-DEC INC. | Dental Oper Unit | G501110 | Air Regulator leaking |
| 3406 | A-DEC INC. | Dental Oper Unit | B10075 | Tee barb on H20 regulator broken, syringe tip missing, air regulator leaking |
| 3406 | A-DEC INC. | Dental Oper Unit | 1509792 | Water regulator leaking |
| 3406 | A-DEC INC. | Dental Oper Unit | 1734206 | Holdback air leaking through manifold |
| 3406 | A-DEC INC. | Dental Oper Unit | 1734143 | Holdback air missing and foot switch sticks |
| 3406 | A-DEC INC. | Dental Oper Unit | 1509800 | Air Regulator leaking |
| 6300 | A-DEC INC. | Dental Light | HBU-63953 | Needs new spring |
| ADC-01 | ASEPTICO INC | Dental Chair | A27794-01-25 | Missing Chair Pin |
| ADC-01 | ASEPTICO INC | Dental Chair | A22995-01-01 | 2 arm pins and one chair pin missing, back shaft bent |
| ADC-01 | ASEPTICO INC | Dental Chair | A27794-01-18 | 2 arm pins missing |
| ADC-01 | ASEPTICO INC | Dental Chair | A22794-01-08 | 2 arm pins missing |
| ALU-29 | ASEPTICO INC | Dental Light | SHO8194-110-12 | Missing Bulb and Fuse |
| ALU-29 | ASEPTICO INC | Dental Light | SHO8194-110-17 | Missing Bulb and Fuse Holder |
| ALU-29 | ASEPTICO INC | Dental Light | SHO8194-110-15 | Missing Bulb and Fuse Holder |
| CM 185 | DEN-TAL-EZ INC Now Dental EZ Group | Dental Chair | 2605 | Missing Headrest |
| CM 185 | DEN-TAL-EZ INC Now Dental EZ Group | Dental Chair | 3313 | Back will not tilt- hydraulic low |
| CM 185 | DEN-TAL-EZ INC Now Dental EZ Group | Dental Chair | 2628 | Back will not tilt- hydraulic low |
| CM 185 | DEN-TAL-EZ INC Now Dental EZ Group | Dental Chair | 2008 | Back will not tilt- hydraulic low |
| CM 185 | DEN-TAL-EZ INC Now Dental EZ Group | Dental Chair | 2887 | Back will not tilt- hydraulic low |
| CM 185 | DEN-TAL-EZ INC Now Dental EZ Group | Dental Chair | 203 | Broken Case Latch |
| CM 185 | DEN-TAL-EZ INC Now Dental EZ Group | Dental Chair | 3645 | Back will not tilt- hydraulic empty - screw missing |
| CM 185 | DEN-TAL-EZ INC Now Dental EZ Group | Dental Chair | 513 | Needs 4 latches |
| CM 185 | DEN-TAL-EZ INC Now Dental EZ Group | Dental Chair | 575 | Missing 2 latches and needs hydraulic fluid |
| LF-II | PELTON AND CRANE CO | Dental Light | HBU-63948 | Needs new spring |
| LF-II | PELTON AND CRANE CO | Dental Light | HBU-63941 | Needs new spring |
| LF-II | PELTON AND CRANE CO | Dental Light | HBU-63945 | Needs new spring and bulb |
| LF-II | PELTON AND CRANE CO | Dental Light | HBU-63956 | Needs new spring |
| LF-II | PELTON AND CRANE CO | Dental Light | HBU-64047 | Needs new spring |
| LF-II | PELTON AND CRANE CO | Dental Light | HBU-63959 | Needs new spring |
| M5B | AIR TECHNIQUES INC | Compressor | 1742 | Bad unloader valve |
| Portable | | Field Sink | 1401 | Missing power cord |
| Portable | | Field Sink | 6648 | Needs circuit breaker, heater element, and outlet port |
| Portable | | Field Sink | 1416 | Pump runs continuously but no flow |
| Portable | | Field Sink | 1380 | Missing 1 Brush Pocket |
| Portable | | Field Sink | 1352 | Outlet port on control unit broken |

Table 2. List of equipment identified as Non-Mission Capable (NMC)

| Nomenclature | Model No. | Serial No. | Deficiencies | Comments |
|-----------------|-------------|----------------|--|--|
| Dental Light | ALU-29 | SH24395-110-14 | Case torn-Fuse blown-Brightness knob broken-Bulb missing | Code H - Unit being replaced by USAMMA-33390001 |
| Dental Light | LF-II | HBU-64053 | Bad transformer, spring, and bezel | Code H - Unit being replaced by USAMMA-33290114 |
| Sterilizer | Validator 8 | 16627 | No 7 segment display | Code H - Unit being replaced by USAMMA-33250002 |
| Sterilizer | Validator 8 | 16629 | Boards blown - Unit packed wet | Code H - Unit being replaced by USAMMA-33390002 |
| X-Ray Apparatus | Heliident | 01709-S02 | Timer switch contacts bad - unit no longer supported | Code H - Unit being replaced by USAMMA-33250001 |
| Sink | Portable | 01418 | Missing Control | Code H - Unit being replaced by USAMMA-33390003 |
| X-Ray Processor | D-0129 | 010194 | Case severely cracked | Code H - Unit being replaced by USAMMA-33420206 |
| Dental Light | 6300 | J737082 | Light head broken and end cover missing | Parts not available in time for deployment - Code H-33420208 |
| Dental Light | 6300 | J737076 | Light head shattered | Part not available in time for deployment - Code H-33420028 |
| Dental Light | LF-II | HBU-63918 | Needs New Spring | Part not available in time for deployment - Code H-33420196 |
| Dental Light | LF-II | HBU-64096 | Needs New Spring | Part not available in time for deployment - Code H-33420199 |

Sample Data Collection Monthly Report December 2003



**Submitted to:
U.S. Army Medical Materiel Agency
U.S. Army Medical Research and Materiel Command
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Report # 023

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Introduction: The U.S. Army Medical Material Agency (USAMMA) serves as the Army Medical Department's (AMEDD) strategic level medical logistics organization. USAMMA's mission is to enhance the medical material readiness throughout the full range of military health service support missions worldwide. In this role USAMMA develops and implements innovative logistics concepts and technologies as well as promoting military and medical logistics information and knowledge.

The agency's core skills and technologies center on conducting life cycle management for commercial and non-developmental items, sustaining and modernizing the medical force, supporting exercises and contingency operations and disseminating medical logistics information and knowledge. Two of USAMMA's critical groups tasked with this mission are the Maintenance Engineering Operations Directorate (MEOD) and the Technology Support Division (TSD). The MEOD is responsible for the maintenance of all the medical equipment while the TSD is responsible for ensuring the medical technology is sustainable and meets current and future utilization requirements.

In order to enhance the strengths of MEOD and TSD, USAMMA has contracted, (contract # DAMD17-01-D-0004), with McAdams Technologies Inc., (subcontracted to Information Systems Support Inc. March 2001), to develop and implement a sample data collection program for targeted medical devices. The overall focus of this program is to assist USAMMA in supplying medical field equipment, and DEPMEDS facilities with current, and sustainable medical technology in a fiscally efficient manner.

Scope: This document, the twenty-third Sample Data Collection (SDC) report, includes technical research on three different requirements including a surgical headlight system needed to replace several obsolete models, a voice recorder for taking medical notes, and a muscle stimulator evaluation. Maintenance activity for this issue includes a report on an evaluation of the Army Reserve Storage and Maintenance System (ARSAMS).

Technology Support Issues

The following equipment and technology issues were addressed during December.

Surgical Headlight System. A requirement existed for a surgical headlight, NSN 6515-01-184-1235, Light Head Fiber Optic, to fill a need in the M477 assemblage. All current “J” NSNs were found to be obsolete. The most current model, NSN 6515-01-334-9195, model SYA2080 from Medical Warehouse, had a replacement available but required the purchase of a separate light source at a considerable additional cost. In researching this need, it was found that modern headlight systems are being manufactured with smaller light sources that provide appropriate illumination with cooler light so the user could safely carry the light source on them. The recommended replacement is a Welch-Allyn Solarc Surgical Headlight System, which has the part number 49520. This item has the NSN 6515-01-498-3999 but it has an AAC of L. This item comes complete with the headband, light and light source. Figure 1 is a picture of the all-in-one unit.

Recommendation: The recommended surgical headlight for the M477 set is the Welch-Allyn Solarc Surgical Headlight System, part number 49520, NSN 6515-01-498-3999.



Figure 1. Solarc Surgical Headlight System

Sound Recorder. There was a requirement in a Clinical Psychologists Field Set for a sound recorder, NSN 5835-01-457-7933. The discontinued item is the Sony Pressman recorder model M679V as shown in figure 2. The suggested replacement, the Sony Pressman model M655V, shown in figure 3, provides all the features of the obsolete model with a number of improvements. **Recommendation:** Procure the M655V in lieu of the M679V



Figure 2. Sony Pressman M679V



Figure 3. Sony Pressman M655V

The main features of the Sony M-679V Microcassette recorder with Voice Activating Recording (VOR) is as follows:

- Choice of 2 Voice Operated Recording (VOR), activates the recorder only when audible sound is present, and 1 Manual Recording Settings
- 2-Speed Record/Play Control
- One-Touch Recording
- Pause Control
- Tape Counter
- Fast Forward & Fast Reverse Controls
- CUE/Review Control
- Built-in Microphone
- 3.5mm Microphone and Earphone Jacks
- 3 LED Battery Level System / Low Battery Indicator
- Record Indicator
- DC 3 volt Input Jack
- Runs on AC, 2 "AA" batteries, or 2 AA rechargeable NiCad batteries

Features of the suggested replacement, the Sony Pressman model M655V, are as follows:

- Voice Operated Recording (VOR) activates the recorder only when audible sound is present
- Battery LED Indicator With Alert LED confirms battery and alerts the user of low battery power
- Record LED With Voice Mirror confirms recording operation by mirroring voice with LED illumination
- Microphone Jack allows use of an external microphone
- 26-Hour Battery Life
- Fast Playback is 20% faster than normal and reduces the time needed to review recordings
- "Clear Voice™ Plus" Recording System enhances voice quality for greater clarity
- 3-Digit Tape Counter
- Built-In Microphone
- One-Touch Recording
- Cue And Review With Slide Control provides sound during Fast Forward and Rewind to help find specific passages
- Automatic Recording Level Control ensures correct recording level
- Automatic Shut Off at End Of Tape pops up buttons to conserve battery power, reduces mechanical wear, and alerts you that the end of the tape has been reached
- 2-Speed Record and Playback gives you the option of recording on a standard microcassette at either normal speed of 2.4cm/sec or half the normal speed at 1.2cm/sec for extended recording or dictation sessions
- 3V DC Input Jack
- L/R Monaural Earphone Jack
- Hinged Battery Lid helps prevent accidental loss when changing batteries
- System: 2-Track 1-Channel monaural
- Inputs: DC-In 3V, External microphone
- Outputs: Earphone/Headphones
- Power Requirements: DC 3V with "AA" batteries, AC 120V 60Hz with optional AC adaptor
- Supplied Accessories: Rechargeable "AA" Batteries, Battery Charger, AC Adaptor

Muscle Stimulator. Several Chattanooga muscle stimulators, the Intellect Legend Combo Model INTCB, were procured in lieu of the Chattanooga Forte CPS Series Combo 200. USAMMA-TSD was requested to determine if the Intellect Legend Combo (shown in figure 4) was an acceptable substitute for the Combo 200. In comparing the two systems, only one major difference was identified. The CPS in the Forte CPS Series Combo 200 (shown in figure 5) stands for Clinical Protocol System, which is an approach for setting up a treatment using preset parameters. The Clinical Protocol library includes over 100 preset treatments for pain management, muscle contraction or ultrasound. The Intellect Legend Combo has all the same features as the Combo 200 except for the CPS function. **Recommendation:** The Intellect Legend Combo Model INTCB is an acceptable substitute for the Combo 200 because the operators are properly trained in selecting the appropriate parameters for treatment. The CPS function allows for quicker and simpler setup of the equipment.



Figure 4. Intellect Legend Combo



Figure 5. Forte CPS Combo 200

MEOD Issues

The following MEOD issues were addressed during December.

Army Reserve Storage and Maintenance System (ARSAMS) Evaluation

Jamie Parks III, a consultant for Information Support System, Inc. performing Sample Data Collection services under contract to the United States Army Medical Materiel Agency (USAMMA), assisted the National Maintenance Point (NMP) with the evaluation of the Army Reserve Storage and Maintenance System (ARSAMS).

One of the issues at the NMP is collaboration with other data systems. Systems configured as medical stand-alone systems or on incompatible networks within the Army Logistics Information System (ALIS) make it hard to utilize all resources of automated information systems. The strategic intent is to push information from the Standard Army Maintenance System (STAMIS) platform, and then integrate it into a centralized data warehouse (DW) before roll-up to the Logistics Support Activity (LOGSA). Quantities information can be gathered and made available by extracting data through the use of data mining tools. Enterprise trust relationships are needed to stabilize the data warehouse with logistical pipeline updates. All these resources of information will only be as good as the connectivity from the foxhole to the industrial base.

ARSAMS will provide asset management, maintenance, equipment visibility, and readiness reporting for medical equipment at the Area Maintenance Support Activities (AMSA), Equipment Concentration Sites (ECS), and Strategic Storage Sites (SSS). The program consists of three modules, the Storage Module (SM), Maintenance Module (MM), and Automated In Trans (AIT) Module. A Reservations Module will be in the web version of ARSAMS due out in the fall of 2004. The following is just a brief overview of what each module can provide.

Storage Module (SM):

The Storage Module (SM) will provide asset visibility and fleet management with the ability to configure systems, and issue and receive equipment with standard STAMIS imports and exports. Figure 2 shows a screen capture of the equipment list in this module.

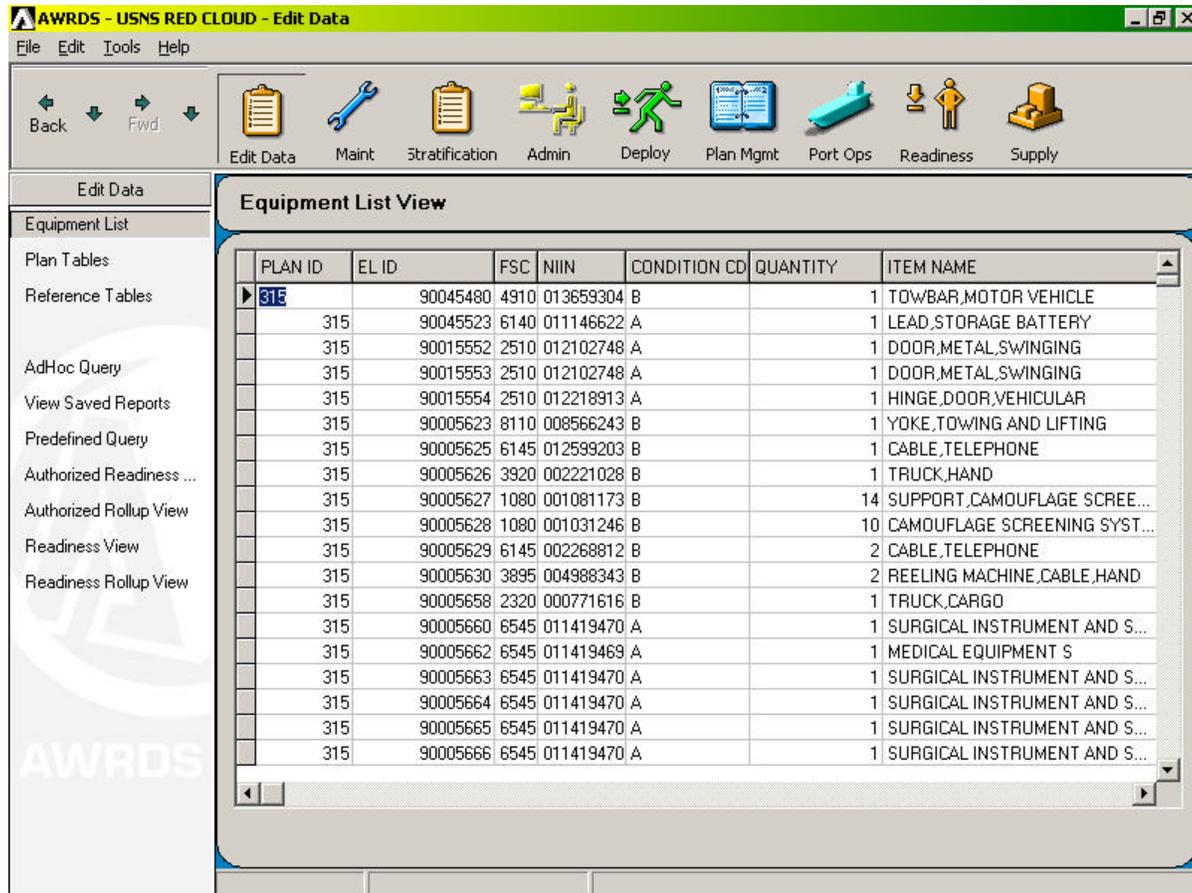


Figure 6. ARSAMS Storage Module (ST) Equipment List Screen

Maintenance Module (MM):

The MM provides standardized task level maintenance that is derived directly from the appropriate technical manual (TM) for the specific end item. Thus, in contrast to legacy STAMIS (SAMS, SAMS I/TDA), ARSAMS ensures accurate and standardized reporting of labor and costs (to include parts) performed down to the subcomponent level of repair for end item or component repair. The MM interfaces with SARSS, ULLS, and SAMS systems. Figure 7 is a screen show showing the document register screen of the Maintenance Module.

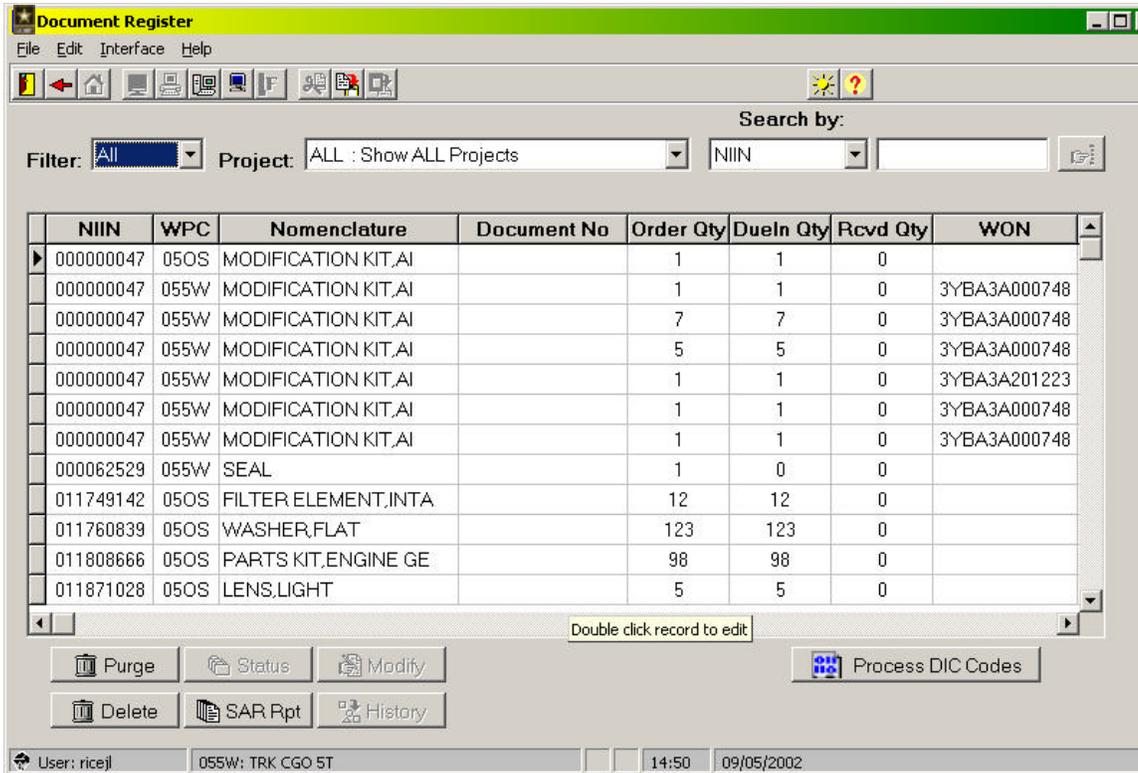
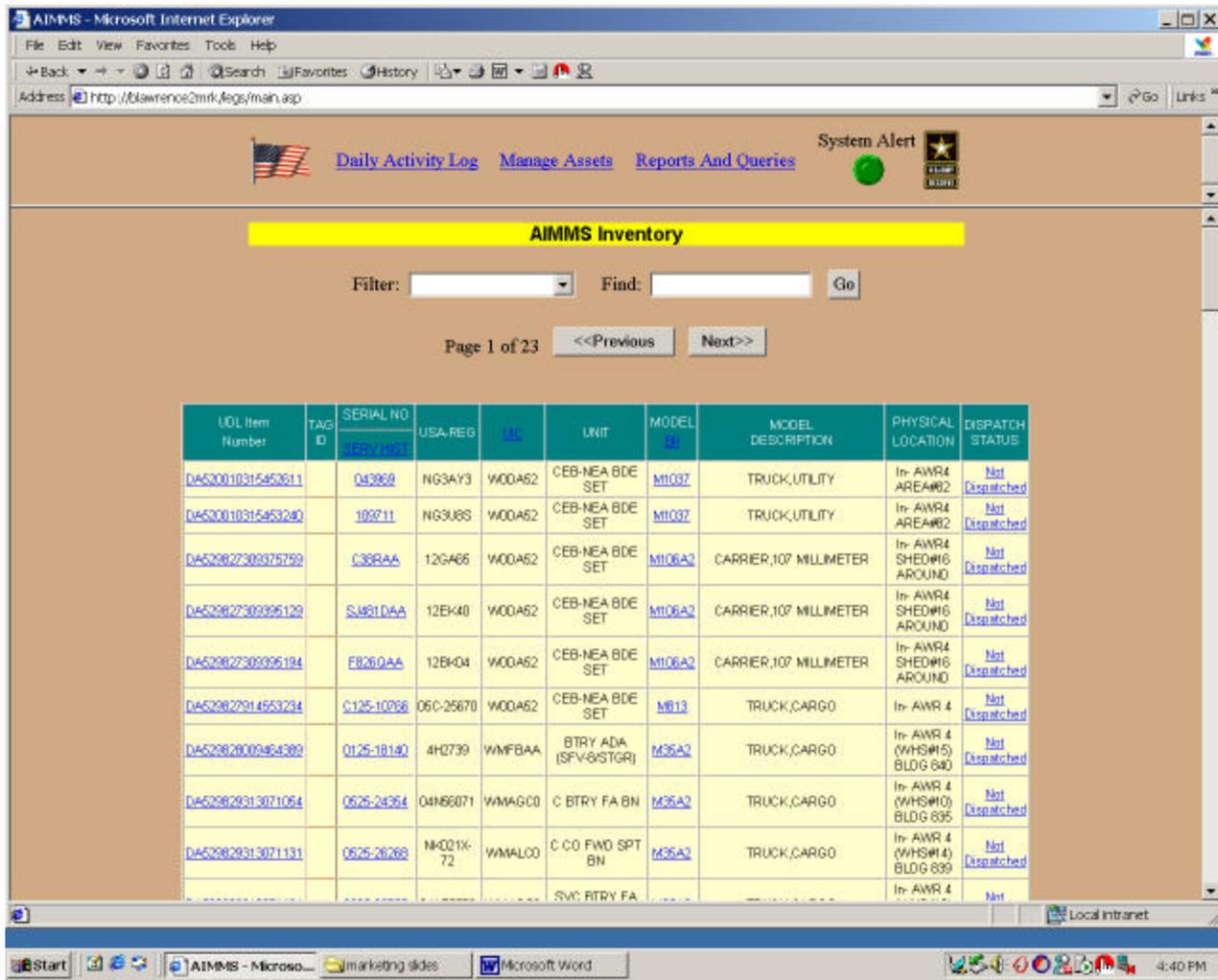


Figure 7. ARSAMS Maintenance Module (MM) Document Register Screen

Automated In Trans (AIT) Module:

The AIT Module will provide bar code and radio frequency identification (RFID) capability for asset visibility and location tracking. This capability will interface with existing Army AIT systems and interface with Total Asset Visibility (TAV), Joint Total Asset Visibility (JTAV), and Global Transportation Network (GTN). Figure 8 is a screen capture of the inventory screen in the AIT Module.



8. ARSAMS Automated In Trans (AIT) Module Inventory Screen

Summary: After conducting a gap analysis of the National Maintenance Point and Sustainment Maintenance, ARSAMS could be used for proof of concept on the ERP solution at MEOD with some modifications made for medical application. The final end-state for any system evaluated is to integrate into the SAP solution. (Bolt-on technology)

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