TECHNICAL BULLETIN

WARRANTY PROCEDURES FOR

TRUCK, FIREFIGHTING, 1000 GPM MULTIPURPOSE, MODEL 2500L

CONTRACT NO. DAAJ10-84-C-A239 NSN: 4210-01-193-3621

This copy is a reprint which includes current pages from Change 1.

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CHANGE NO. 1

HEADQUARTERS DEPARTMENT OF THE ARMY WASHINGTON, D.C., 20 February 1990

Technical Bulletin

WARRANTY PROCEDURES FOR TRUCK, FIREFIGHTING, 1000 GPM MULTIPURPOSE, MODEL 2500L CONTRACT NO. DAAJ10-84-C-A239 NSN: 4210-01-193-3621

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TB 5-4210-220-24, 14 March 1988, is changed as follows:

1. Remove and insert pages as indicated below. New or changed text material is indicated by a vertical bar in the margin. An illustration change is indicated by a miniature pointing hand.

Remove pages Insert pages

15 and 16 15 and 16

2. Retain this sheet in front of manual for reference purposes.

By Order of the Secretary of the Army:

CARL E. VUONO General, United States Army Chief of Staff

Official:

WILLIAM J. MEEHAN, II

Brigadier General, United States Army The Adjutant General

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TECHNICAL MANUAL TB 5-4210-220-24

NO. TB 5-4210-220-24

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 14 March 1988

WARRANTY PROCEDURES
FOR
TRUCK, FIREFIGHTING, 1000 GPM
MULTIPURPOSE, MODEL 2500L
CONTRACT NO. DAAJ10-84-C-A239
NSN: 4210-01-193-3621

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistake or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, U.S. Army Troop Support Command, ATTN: AMSTR-MCTS, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798. A reply will be furnished directly to you.

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SECTION I

GENERAL

- **1-1. GENERAL**. The purpose of this technical bulletin is to outline the procedures for identifying warranted items/components of the Military Adapted Commercial Item (MACI) fire truck being procured from Canadian Commercial Corporation, (AMERTECH); Hull, Quebec, Canada.
- **1-2. EXPLANATION OF TERMS**. Not applicable to this bulletin.
- **1-3. COVERAGE:** The contractor, Canadian Commercial (AMERTECK) guarantees the MACI fire truck, and each component thereof, to be free of defects in materials and workmanship for a period of twelve (12) months from the time of acceptance as shown on the Material Inspection and Receiving Report (DD Form 250).
- **1-4. EXCEPTIONS TO WARRANTY**. The warranty does not apply to repair or replacement required to restore the unit to operation in the following instances:
- a. Expendable items such as filters, light bulbs, belts, lubricants, fluids and items replaceable due to normal service requirements.
 - b. Combat damage and liability for loss, damage or injury to third parties or consequential damages.

SECTION II

RESPONSIBILITIES

2-1. CONTRACTOR RESPONSIBILITIES.

- a. The contractor shall promptly repair or replace such parts as are necessary to achieve the specified performance requirements and the contractor shall bear the cost.
- b. If the contractor fails to repair or replace such parts promptly, as determined by the contracting officer, the contractor shall pay costs incurred by the Government in procuring such parts from another source and in accomplishing the repair. Refer to paragraph 1-3 for warranty coverage.
- c. On fire trucks used within the 50 states of the United States and the District of Columbia, the guarantee shall include the furnishing, without cost to the Government, Freight on Board to the original destination, of new items to replace any that prove to be defective within the warranty period. The cost of the labor involved in the replacement of the defective items at the contractor's plant, branch or dealer, facility shall be borne by the contractor. The contractor shall furnish during the first 90 days of the warranty period, a technical service representative to supervise and assist in replacing and adjustment of the failed items effected in any unresolved type warranty action. After 90 days the Government shall reimburse the contractor for travel and per diem expenses to and from the activity when a technical service representative is required for resolution of problems during the warranty period and thereafter. Response by the contractor shall be immediately after Government notification of this desired service.
- d. On fire trucks used outside the 50 states of the United States and outside the District of Columbia, the guarantee shall include the furnishing of new items to replace defective ones. Return of defective items to the contractor shall be at the option and at the expense of the contractor. The replacement item(s) shall be delivered by the contractor to the Port of Embarkation in the United States designated by the Government.
- e. The contractor shall not be required to bear the cost of the labor involved in correcting defects in fire trucks used outside the 50 states and outside the District of Columbia provided the contractor does not have established business facilities servicing the geographic area of concern. Replacement item(s) directed outside the 50 states and outside the District of Columbia shall be accompanied by detailed installation instructions.

2-2. TRANSPORTATION.

a. On Items used within the 50 states of the United States and the District of Columbia, the guarantee shall include the furnishing, without cost to the Government, Freight on Board (FOB) to the original destination, of new items to replace any that prove defective within the warranty period.

- b. On items used outside the 50 states of the United States and District of Columbia, the guarantee shall include the furnishing of new items to replace defective ones. Return the defective items to the contractor shall be at the option and expense of the contractor. The replacement item(s) shall be delivered by the contractor to the Port of Embarkation in the United States designated by the Government.
- c. When replacement requires transportation of the defective item(s), shipping costs not to exceed usual commercial method of shipment from delivery point to contractors plant and return shall be borne by the contractor.
- d. When component items are shipped back to the contractor for warranty work, they should be packaged in such a manner as to prevent shipping damage. Proper containers and packaging materials shall be used.
- **2-3. GOVERNMENT RESPONSIBILITIES.** Using Units are responsible for reporting failure to U.S. Army Troop Support Command, 4300 Goodfellow Blvd., ATTN: AMSTR-QE, St. Louis, MO 63120-1798, AUTOVON 693-9457, CMCL (314) 263-9457.

SECTION III

FORMS AND PROCEDURES

- **3-1. CLAIMS**. Warranty claims from using field units are to be forwarded to the TROSCOM Warranty Control Office (WARCO) AMSTR-Q, which will initiate Warranty Claim Actions for warranted items, and Quality Deficiency Reporting actions for systematic failures in accordance with DA PAM 738-750. See Appendix A for other WARCO offices and addresses.
- **3-2. NOTIFICATION OF FAILURES**. The contractor must be notified by the Government in writing of any failure of the fire truck or component thereof that is covered under this warranty within 30 days after verification of the failure by an intermediate maintenance facility.
- **3-3. GOVERNMENT MAINTENANCE.** Using units are allowed to perform troubleshooting, preventive maintenance and replacement of defective components as authorized by the Maintenance Allocation Chart.
- **3-4. ALTERATIONS.** Alterations and/or modifications shall not be made to this equipment unless authorized by USATROSCOM.
- **3-5. NULLIFICATION**. Failure to perform operation and maintenance in accordance with the applicable technical manuals and maintenance allocation chart may be cause for nullification of the warranty.
- **3-6. REPORTING.** Reporting or recording action in a failure items shall be specified in DA PAM 738-750.
- **3-7. FORMS.** DA Forms 2407 and 2402 are used by the field in reporting warranty claim actions (WCA's). The purpose of these forms are for the Seller to repair or replace any defective part so the equipment can be returned to an operational readiness mode.

3-8. GOVERNING OF WCA'S.

- a. WCA's can be started by any maintenance level.
- b. Selecting exhibits. A component, part or assembly under warranty that is defective due to design or workmanship becomes a warranty claim exhibit. All exhibits will carry a DA Form 2402 marked "Warranty Exhibit."
- c. Local commands will set up an office to handle local warranty claims. The office will also deal with warranty actions between its activities, the local dealer or manufacturer, and the National Maintenance Point (NMP). Report warranties settled locally by printing "For Information Only" in Block 16a of the DA Form 2407.
- d. Non-direct exchange (non-DX) claim items. When the warranted item is not handled through DX, the unit prepares and sends a completed DA Form 2402 (with exhibit) and DA Form 2407 to the warranty claims office. The office then deals with the DA Form 2407 as follows:

- (1) Send copy #1, #2, and #5 to: CDR, TROSCOM, ATTN: AMSTR-Q, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. One of these copies will go to the item manager to show a supply demand.
- (2) Keep copy #3 for 180 days (with exhibit and DA Form 2402), unless you are told differently. If you receive no instructions after 90 days, contact: CDR, TROSCOM, ATTN: AMSTR-Q, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798, telephone number, 314-263-9457 for information.
- (3) Copy #4 gives you the authority to tell the claim creator to get the new item through supply. Copy #4 is kept, at most, for 180 days or until you get notice that the claim has been honored.
- e. Direct exchange (DX) claim items. When the warranted item is handled through DX, the unit starting the claim action fills out the same forms and deals with them the way they do for a non-DX item except as follows:
- (1) The unit running the DX shop starts the replacement action for supported units. The DX shop uses Copy #4 of the DA Form 2407 to start the action.
 - (2) Normal DX replacement actions will be made by the DX shop for like serviceable items in stock.

3-9. DA FORM 2407. The following are instructions on completing DA Form 2407 by block number and title heading:

	TENANCE REQUEST	pestog	PAGE NO	NO OF PAGES		INT CONTROL BYMBOL DLD—1047(R1)
	SECT	TION : - EQUIPME	NT DATA		. 9	
LO8610-	WORK ORDER NUMBER	WESDC	ORG PD	PD AUTHENT	CATION	
WORK REQUEST MWO WARRANTY CLAIM	18 ORGANIZATION		b LOCATION			E UNIT IDENT COD
SERIAL NO	3 NOUN NOMENCLATURE	A LINE NO	5 MODEL		6. NATIONAL	STOCK NUMBER

Page No/No of Pages Enter the page number. Total pages will be entered when entries in Section II are complete.

Work Order Number Leave blank.

WESOC Leave blank.

ORG PO Leave blank.

PO Authentication Leave blank.

Work Request Leave blank.

MWO Leave blank.

Warranty Mark this block.

- 1a ORGANIZATION Enter location of organization sending in the report.
- **1b LOCATION** Enter name of organization writing the request [overseas list APO only].
- **1c UNIT IDENT CODE** Enter unit identification code IUIC) of the unit shown in block 1a.

2. SERIAL NO

- a. For nontactical wheeled vehicles, list the USA registration number.
- b. For ammunition, put in the lot number.
- c. For all other items, list the serial number, if known. For floating craft, list the Department of Army Hull number. If more than one serial number, leave blank.
- d. When using this Form for more than one item or component, leave blank.
- 3. **NOUN NOMENCLATURE** Put in name abbreviation of equipment for which the form was started.
- 4. LINE NO Leave blank.
- 5. Model Put in the item model number.
- **6. National Stock Number** Put in the National Stock Number of equipment in block 3. When completing this form for many items having several NSNs, leave blank.

7. MAINTENANCE ACTIVITY	LEVEL B. UTILIZA 9		PACING	10 HOURS		12 ROUNDS 13 STARTS
14 FAILURE DETECTED DURING A Mointenance C Tert B Handling D Normal	☐E Storage ☐	G Filight 068 Inc	oerative [ROUBLE /Selec 254 Overheatin 367 Low Perto		Out of Adjustment
16 DESCRIBE DEFICIENCIES OR S				NOSTIC PROCI	DURE IN EQUIPM	MENT TM (Do not
					 	
16a. REMARKS				 		

- 7. Maintenance Activity Put in the name of your support activity.
- a. Level Put in the code of the maintenance level doing the maintenance.
- O Organizational (ORG)
- F Direct Support (DS)
- H General Support IGS)
- O Depot
- L Special Repair Activity
- 8. Utilization Code For nontactical wheeled vehicles in administrative use, use utilization code "V."
- 9. MCSR Item Leave blank.
- 9a. ERC Leave blank.
- 9b. Pacing Item Leave blank.
- **10. Hours** Put in the hour reading (rounded to the nearest hour) from the hour meter on the equipment in block 3.
- **11. Miles** Put in the mileage (rounded to the nearest mile) of the equipment in block 3.
- 12. Rounds Leave blank.
- 13. Starts For turbine engines. put in the number of hot starts. If not needed. leave blank.
- 14. Failure Detected During Mark the box that best describes when the failure was Found.
- **15. FIRST INDICATION OF TROUBLE** Mark the box that best describes the conditions when you first found the trouble. Write in a code number from the table below. Leave blank if block 14 is left blank or when listing sampled items for unit maintenance.

Description
Noisy
Inoperative
Overheating
Low performance
Out of adjustment
Intermittent
Off frequency
Unstable
Accident [motor vehicle)
Mid-service life

Other

16 & 16a Leave blank.

*099

^{*}The asterisk shows code numbers not listed in block 15, DA Form 2407. If you select one of these codes, the proper code number must be put in the space called "Other," block 15.

				SECTION I	I - WORK AC	COMPLISH	IED			
174. R		NIZATION/ACTI	/ITY	CUNITIDE	NT CODE		DRGANIZATION/ACTI HING WORK /Selections TOE	- wae √or X)	19, AMS A	CCOUNT CODE
	•						3 CONTRACT			
20a. ACT	FAILURE	C COMPONENT	T/PART NOUN, SV	C, OF MANO NO.	MANHOURS	NATIO	NAL STOCK NUMBER	PART SOURCE	QTY	PARTE COST
CODE	CODE	4. CB CODE	# REF DESIGNA	TOR /. MER CODE	Pro & tentha)		Α	1.,		()
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17a thru 19 Leave blank.

20d. CB CODE Put in the name of the part or assembly under warranty.

20e. REF DESIGNATOR Put in the serial number of the part or assembly under warranty.

20g. Put in the estimated number of hours needed to replace the bad part. Use the proper technical bulletin time schedule guide to get the estimated hours. If you can't get the guide. use actual hours.

20h. NATIONAL STOCK NUMBER Put in the NSN of the bad part. If an NSN is not found, use the part number.

20i. j. k. Leave blank.

20a thru 20k Using the remaining spaces in block 20a-20k. put in this information:

The NSN of the defective item.

The name of the defective item.

The date of the failure.

The complete telephone number [AUTOVON/commercial with area code) of the person creating the form. State clearly all factors which added to the failure. Include factors such as type of operation and land and weather conditions. State clearly your opinion as to why the part failed.

201 Total Manhours Self explained.

20m Total Manhour Cost Leave blank.

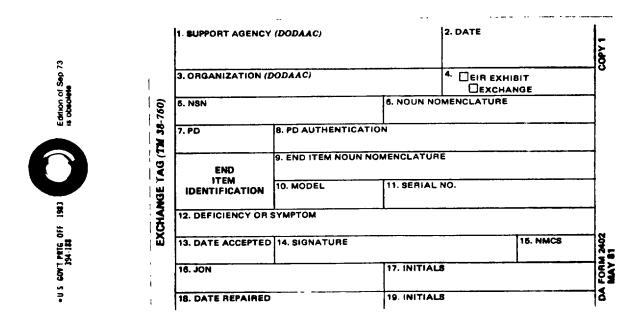
20n Total Parts Cost Self-explained.

21 thru 22 Leave blank.

23 Submitted The person authorized to send DA Form 2407 signs here

24 thru 28 Leave blank.

3-10. DA Form 2402. The following are instructions on completing DA Form 2402 by block number and title:



- **1. SUPPORT AGENCY (DODAAC)** Enter the DOOAAC of the support activity that will exchange the item for you. When this form is used for other than exchanges, use the DODAAC or UIC.
- **2. DATE** Enter the Julian date the item was prepared for exchange.
- **3. ORGANIZATION (DODAAC)** Enter the DODAAC of the unit or organization needing to exchange the item. When this Form is used for other exchanges, use the DODAAC or UIC.
- **4. EIR EXHIBIT/EXCHANGE** Mark the block to show an exchange or EIR exhibit. When used for warranty claims, put a "W" in the open space to the right of EIR EXHIBIT.
- **5. NSN** Enter the NSN of the item.
- 6. NOUN NOMENCLATURE Print the noun abbreviation of the item to be exchanged.
- **7. PD** Enter the priority designator (PD) that applies to the action. The unit or organization listed in Block 3 normally assigns the PD. When the exchange supports a customer maintenance request, use the PO of the maintenance request.

8. PD AUTHENTICATION

- a. The commander or the designated representative signs when a PD of 01 through 10 is in Block
- b. Enter the job order number when a PO of 01 through 10 is taken from a maintenance request.
- **9. END ITEM NOMENCLATURE** Enter the noun abbreviation of the end item for the part or component in Block 6.
- 10. MODEL Enter the model number of the end item.
- 11. SERIAL NO. Enter the serial number of the end item.
- 12. **DEFICIENCY OR SYMPTOM** Briefly describe the problem.
- **13. DATE ACCEPTED** When the Form is used as a receipt. the exchange facility will enter the Julian date.
- 14. SIGNATURE The person who receives the item for exchange signs.
- 15. NMCS Print the word "Yes" for an NMCS condition.
- **16. JON** The facility that will repair the item enters the job order number.
- 17. INITIALS The person receiving the item for repair initials in this block.
- 18. DATE REPAIRED The person doing the work enters the date the work was finished.
- **19. INITIALS** The person doing the work initials in this block.

SECTION IV STORAGE AND SHIPMENT

- **4-1. STORAGE**. Storage of the equipment or its components shall be as prescribed in TM5-4210-220-12 and TM 5-4210-220-34.
- **4-2. SHIPMENT.** Instructions for shipment of components will be provided by the TROSCOM Warranty Control Officer. Refer to Appendix A.

APPENDIX A

Command	Location/Station	Address	Phone AV/COMM
TROSCOM	HEADQUARTERS	Cdr, TROSCOM ATTN: AMSTR-Q 4300 Goodfellow Blvd. St. Louis, MO 63120-1798	693-3478
USAREUR	Belgium, Chivres	Cdr, 47th Area Spt Group ATTN: AERUK-Q APO NY 09075	243-1274
USAREUR	GE, ANSBACH	Crd, 1st AD ATTN: AETS-KGD-M APO NY 09326	ETS 468-8467
USAREUR	GE, BAD KREUZNACH	Cdr, 8th DMMC ATTN: AETH-MC APO NY 09111	ETS 490-7181/7148
USAREUR	GE, BERLIN	Cdr, USA Berlin ATTN: AEBA-MA-O APO NY 09742	ETS 332-3249/3189
USAREUR	GE, BREMERHAVEN	Cdr, 543D Area Support Gp ATTN: AERB-GM APO NY 09069	ETS 342-8285/8588
USAREUR	GE, CHIVRES BERLIN	Cdr, 80th Area Support Gp ATTN: AERSH-LM APO NY 09088	ETS 361-5454
USAREUR	GE, DARMSTADT	Cdr, 32D AADCOM ATTN: AETL-GD-CM APO NY 09175	ETS 348-6532/7186
USAREUR	GE, FRANKFURT	Cdr, 3D DMMC (3d AD) ATTN: AETFOE-MMO-MAT APO NY 09039	ETS 328-7221/8281
USAREUR	GE, FRANKFURT	Cdr, V Corps ATTN: AETV-GDM-M APO NY 09079	ETS 320-6062/5773

APPENDIX A (Continued)

Command	Location/Station	Address	Phone AV/COMM
USAREUR	GE, FULDA	Cdr, 11th ACR ATTN: AETO-CSS-MMC APO NY 09146	ETS 321-3679/3779
USAREUR	GE, GARLSTEDT	Cdr, 2D Armd Div (FWD) ATTN: AEUAD-498-MAT APO NY 09355	ETS 342-6730-6728
USAREUR	GE, GOEPPINGEN	Cdr, 1st Inf Div Fwd ATTN: AETSGSB-MM-MMD APO NY 09137	ETS 425-3637/3753
USAREUR	GE, GRAFENWOEHR	Cdr, 7th ATC ATTN: AETT-DOL-SM-E APO NY 09114	ETS 476-2567/2767
USAREUR	GE, GRAFENWOEHR	Chief, M1 Mat Fielding Team ATTN: AMCPM-GCM-MFT-E APO NY 09114	ETS 476-2757/2612
USAREUR	GE, HEIDELBERG	Cdr, 7th MEDCOM ATTN: AEMLO-L APO NY 09102-3304	ETS 370-2718/2719
USAREUR	GE, HEIDELBERG	Cdr, 26th Spt Gp ATTN: AEUSG-LG-M APO NY 09102-0161	ETS 370-8319/6478
USAREUR	GE, KAEFERTAL	Cdr, 51st Maint Bn ATTN: AERAB-MO APO NY 09086	ETS 380-6773/7416
USAREUR	GE, KAISERSLAUTERN	Cdr, 9th Spt Ctr ATTN: AERLM-LS APO NY 09325-3704	ETS 483-7561/8625
USAREUR	GE KAISERSLAUTERN	Cdr, 29th Area Support Gp ATTN: AERAS-MM APO NY 09054	ETS 483-7347/8235
USAREUR	GE, KAISERSLAUTERN	Cdr, HHD 66th Maint Bn ATTN: AERAS-W-D APO NY 09227	ETS 489-6636/6676

APPENDIX A (Continued)

Command	Location/Station	Address	Phone AV/COMM
USAREUR	GE, KARLSRUHE	Cdr, 18th Eng Bde ATTN: AEUEG-S APO NY 09164-2934	ETS 376-6069/7102
USAREUR	GE, MANNHEIM	Cdr, CBT Equip Gp Europe ATTN: AERSE-M-SMO APO NY 09166-3768	ETS 380-7686/6285
USAREUR	GE, MOEHRINGEN	Cdr, VII Corps ATTN: AETS-GD-MR APO NY 09107	ETA 421-2622/2382
USAREUR	GE, MUNICH	Cdr, 66th MI GP ATTN: IAGPE-LO-MM APO NY 09108-4827	ETS 440-7306/6433
USAREUR	GE, NELLINGEN	Cdr, 800th CMMCS ATTN: AETS-SC-CMMC-OP APO NY 09061	ETS 421-6500/6372
USAREUR	GE, NELLINGEN	Cdr, 2d SUPCOM Corps ATTN: AETS-SC-GE-TAAEM APO NY 09160	ETS 421-6385
USAREUR	GE, NEU ULM	Cdr, 55th Maint Bn ATTN: AEUATS-MMC APO NY 09035	ETS 427-6189/7193
USAREUR	GE, NUERNBERG	Cdr, 2d ACR ATTN: AETSAC-AL-RMO APO NY 09093	ETS 460-5757/5805
USAREUR	GE, OBERURSEL	Cdr, 4th TRANSCOM ATTN: AEUTR-SVC-M APO NY 09451-4006	ETS 325-2743/2808
USAREUR	GE, PIRMASENS	Cdr, 59th Ord Bn ATTN: AEUSA-DMM APO NY 09189	ETS 495-7216/7276
USAREUR	GE, RHEINBERG	Cdr, 7th SUPCOM ATTN: AERSC-LM APO NY 09712	Comm 02843_70757
USAREUR	GE, RHEINBERG	Cdr, 54 Area Support GP ATTN: AERV-L APO NY 09712	Comm 02843-70674

APPENDIX A (Continued)

Command	Location/Station	Address	Phone AV/COMM
USAREUR	GE, SANDHOFEN	Cdr, 70th TRANS BN ATTN: AERSS-S	ETS 382-6110/7236
USAREUR	GE, SECKENHEIM	APO NY 09028 Cdr, HQ AMC Europe ATTN: AMXEU-CQ APO NY 09333	380-6222 Comm 0621-478791
USAREUR	GE, WIESBADEN	Cdr, 19th Support Center ATTN: AETV-SCM-PF APO NY 09757-5000	ETS 337-5851/5377
USAREUR	GE, WUERZBERG	Cdr, 3d ID ATTN: AETSBGD-MR APO NY 09036	ETS 350-7188/6226
USAREUR	GE, WUERZBERG	Cdr, 3d ID ATTN: AETSBSC-DM-(WARCO) APO NY 09701	ETS 355-2603/2782
USAREUR	GE, ZWEIBRUECKEN	Cdr, 60th Ord Gp ATTN: AEROD-LM APO NY 09052-3818	ETS 494-6275/7398
USAREUR	GE, ZWEIBRUECKEN	Cdr, 200th TAMMC ATTN: AEAGD-MMC-RL-W APO NY 09052-5356	ETS 494-6568/8268
USAREUR	IT, LIVORNO	Cdr, 201st MMC (USASETAF) ATTN: AESE-MMX-M APO NY 09019	ETS 633-7002/7087
USARJ	JAPAN, ZAMA	Cdr, USA Garrison Honshu ATTN: AJGH-ID-MS-Q APO San Francisco 96343-0071	228-4194
EUSA	KOREA,SEOUL	Cdr, 8th US Army ATTN: DJ-M-S-M APO San Francisco 96301-0009	315-223-6361/3885
WESTCOM	FT. SHAFTER	Cdr, USASCH ATTN: APZV-DLM Ft. Shafter, HI 96858	438-1410
See also:	DA PAM 738-750, <u>MAINTE</u>	NANCE MANAGEMENT UPDATE, Issue	Number 11, Table J-I

Change 1 15

APPENDIX B REFERENCES

DA PAM 738-750
DA FORM 2407
DA FORM 2402
DA FORM 2408-9
Maintenance Management Update

The Army Maintenance Management System (TAMMS)
Maintenance Request
Exchange Tag
Acceptance Report
Issue Number 9, table J-1

By order of the Secretary of the Army:

Official:

CARL E. VUONO General, United States Army Chief of Staff

R. L. DILWORTH Brigadier General, United States Army The Adjutant General

DISTRIBUTION:

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The Metric System and Equivalents

Linear Measure

- 1 centimeter = 10 millimeters = .39 inch
- 1 decimeter = 10 centimeters = 3.94 inches
- 1 meter = 10 decimeters = 39.37 inches
- 1 dekameter = 10 meters = 32.8 feet
- 1 hectometer = 10 dekameters = 328.08 feet
- 1 kilometer = 10 hectometers = 3,280.8 feet

Weights

- 1 centigram = 10 milligrams = .15 grain
- 1 decigram = 10 centigrams = 1.54 grains
- 1 gram = 10 decigram = .035 ounce
- 1 decagram = 10 grams = .35 ounce
- 1 hectogram = 10 decagrams = 3.52 ounces
- 1 kilogram = 10 hectograms = 2.2 pounds
- 1 quintal = 100 kilograms = 220.46 pounds
- 1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

- 1 centiliter = 10 milliliters = .34 fl. ounce
- 1 deciliter = 10 centiliters = 3.38 fl. ounces
- 1 liter = 10 deciliters = 33.81 fl. ounces
- 1 dekaliter = 10 liters = 2.64 gallons
- 1 hectoliter = 10 dekaliters = 26.42 gallons
- 1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

- 1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
- 1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
- 1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
- 1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
- 1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
- 1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

- 1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
- 1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
- 1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	То	Multiply by	To change	То	Multiply by
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit	5/9 (after	Celsius	°C
	temperature	subtracting 32)	temperature	

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