

***TB 43-0002-23**

TECHNICAL BULLETIN

MAINTENANCE EXPENDITURE LIMITS FOR FSC GROUP 45 FSC CLASSES 4510, 4520

*This Technical Bulletin supersedes TB 43-0002-23 dated 15 September 2001.

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HEADQUARTERS, DEPARTMENT OF THE ARMY
11 APRIL 2007

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HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 11 April 2007

TECHNICAL BULLETIN
MAINTENANCE EXPENDITURE LIMITS FOR
FSC GROUP 45
FSC CLASSES 4510, 4520

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms), located in the back of the manual directly to: Commander, U.S. Army TACOM Life Cycle Management Command, ATTN: AMSTA-LC-SECT, Kansas St., Natick, MA 01760-5052. You may also send in your recommended changes via electronic mail or by fax. Our fax number is DSN 256-5205. Our e-mail address is amssbriml@natick.army.mil. A reply will be furnished to you.

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Section I. General

1. Purpose. This bulletin implements the policies established by AR 750-1. It provides one-time repair expenditure limits, guidance for technical inspection, and disposition instructions.
2. Scope. This bulletin applies to U.S. Army organizations, installations, activities and the Reserve components worldwide that use the equipment listed in the appendixes of this bulletin. This bulletin is not applicable to Army depots with an assigned overhaul mission.

Section II. One-Time Repair Expenditure Limits

3. Procedures.
 - a. One-Time repair expenditure limits are applicable each time an item becomes unserviceable. The one-time repair expenditure limit is expressed as a percentage of the total repair cost estimate to the total cost of the end item. End item standard price is listed in Management Data List (MIL) of DA Supply Catalogs or SB 700-20.
 - b. The procedure for determining the repair expenditure limit for an item is as follows:
 - (1) Identify the item by NSN, make, model, serial number and year of manufacture. This data may be obtained from either the equipment data plate or the equipment log book.
 - (2) Obtain the standard price of the item from the Army Master Data File (AMDF).
 - (3) Locate item in the appendix that contains the FSC class to which item is assigned.
 - (4) Determine the percentage factor, columns 7 through 11, that is applicable for the year that repair or overhaul is required.
 - (5) Multiply the end item standard price by the percentage factor (from step (4) above) to determine the one time allowable expenditure costs.
4. Expenditure Limits.
 - a. One-time repair expenditure limits are shown in appendixes as indicated below:
 - (1) FSC 4510 -- Appendix A (Portable Shower Heads)
 - (2) FSC 4520 -- Appendix B (Space Heating Equipment and Domestic Water Heaters)
 - b. Required repairs will not be broken into separate job estimates for the purpose of circumventing prescribed repair expenditure limits.
 - c. However, if end items are equipped with military Standard Engine and/or Military Standard Generator, the following Procedure will be applicable:
 - (1) Deduct the current price of the Military Standard Engine and/or Military Standard Generator from the standard price for the complete end item. The result will be considered the standard price of the end item.
 - (2) Separate one-time repair limitations for the Military Standard Engine and/or Military Standard Generator will be determined by the applicable TB for one-time repair expenditure limits. This will be the exception to breaking required repairs into separate job estimates.
 - d. The expenditure limit is not to exceed 65% of the standard price for bulk components, assemblies and repairable parts applicable to the end items that have remaining repair eligibility cited in this bulletin. These bulk components, assemblies and repairable parts are those items to be repaired and returned to the inventory in support of the direct exchange program and the Maintenance Support Positive (MS+) program.

Section III. Technical Inspections

5. Procedure. Equipment requiring repair or overhaul will be inspected in accordance with instructions contained in Chapter 1, Section I, OF AR-750-1, DA PAM 750-8 and the applicable equipment technical manuals.
6. Forms. The following list of forms will be used when applicable:
 - a. DA Form 2404 (Equipment Inspection and Maintenance Worksheet) will be used to record results of technical inspections. Refer to DA PAM 750-8 for instructions for preparation and use of the form.
 - b. DA Form 3590 (Request for Disposition or Waiver) will be prepared for items that are evacuated for depot maintenance or reported to the NICP as unserviceable excess. Refer to TB 43-0140 for instructions for preparation and use of the form.

Section IV. Computation Of Repair Cost Estimates

7. Cost Factors. Computation of repair cost estimates will be made in accordance with instructions contained in Section I, Chapter 4 of AR 750-1.
8. Procedures. Technical inspection findings will be converted to repair cost estimates by use of instructions contained in Section II of this bulletin and Section I, Chapter 4 of AR 750-1. Exclusions to the estimates of cost to repair are listed in paragraph 4-19b, AR 750-1.

Section V. Disposition Instructions

9. Disposition Instructions.
 - a. Items will be reported to the NICP for disposition instructions under the following conditions:
 - (1) When the estimated one-time repair/overhaul cost exceeds the prescribed expenditure limits cited in this bulletin and a waiver of limits is not authorized as provided in paragraph 3-39, AR 750-1.
 - (2) The repairs required to restore an item to a condition are beyond the capabilities of general support maintenance regardless of estimated repair cost.
 - b. Request for disposition instructions shall be prepared in accordance with TB 43-0140.
 - c. Report of unserviceable excess items on DD Form 134M DOD Single Line Item Requisition System Document (Mechanical) will be accompanied by a completed DA Form 3590 for each major end item.
 - d. Serviceable over-age equipment is to be retained in use unless priority or mission warrants replacement. Minimum organizational maintenance will be applied to maintain over-age equipment operable. Equipment will not be disposed of solely on the basis of the age of the item.
 - e. Equipment for which the estimated repair cost exceeds the maintenance expenditure limits in this bulletin will be reported to the NICP for disposition instructions. No action will be taken to repair or dispose of the equipment until directed by the NICP.
10. Special Disposition Instructions for Hunter heaters.

Reference DoD 4160.21-M, Chapter VIII, Paragraph B26. "Heaters, Defective Hunter. Do not reutilize, transfer, donate or sell the heaters. Potential liabilities from nongovernmental use of these heaters is significant. Therefore, MUTILATE ALL HEATERS. For the heaters that are on trailers run by diesel engines there is no requirement to mutilate the engine or remaining components. These may be processed through normal disposal actions. The SAFE-ALERT/LATENT DEFECT listing identifies all defective Hunter heater NSNs."

Section VI. Appendixes

11. General. Appendixes A through B contain equipment listings and data from determining repair eligibility.
12. Explanation of Columns.
 - a. Column 1, FSC or National Stock Number. End item Nation Stock Numbers listed in numerical sequence.

NOTE

Some end items have the same NSN. When requisitioning parts or making other inquiries, give item identification, manufacturer and model number.

- b. Column 2, Item Identification. Item generic nomenclature, functional capability, make and model.
- c. Column 3, Technical Manual Number Identification to End Item and Remarks. This column contains the applicable end item technical manual (s) identification.
- d. Column 4, Production Year. The year that item was manufactured. If no data is shown, refer to equipment data plate or equipment logbook.
- e. Column 5, Serial No. Range or USA Number. The serial number ranges for the production years listed in column 4.

- f. Column 6, Years of Life Expectancy. The average life expectancy of the item in years.
- g. Column 7 through 11, Repair Limitations. The limiting years in which percentages shown at the top of column can be applied to the end item standard price as the authorized one-time repair expenditure. The limiting year as it appears in the column is intended to represent the actual age of the equipment. Example: If column 7 reflects 1-3 years, the allowance for repair should not exceed these limits when computed as directed by the bulletin.

13. References.

AR 750-1	Army Materiel Maintenance Policy
DA PAM 750-8	The Army Maintenance Management System (TAMMS)
C ML-A	Federal Supply Catalog Management Data List
C 4500 IL-A	Federal Supply Catalog Identification List FSC-4500
TB 43-0002-32	Maintenance Expenditure Limits for FSC Group 61-FSC Class 6115 through 6120, 6125, and 6430
AMDF	Army Master Data File
SB 700-20	Army Adopted/Other Items Selected for Authorization/List of Reportable Items

**APPENDIX A
EXPENDITURE LIMITS FOR FSC CLASS 4510.**

FSC or NSN	Item Identification	TM Number/ Remarks	Production Year	Serial Number Range	Years of Life Expectancy	Repair Limitations				
						55%	50%	40%	30%	20%
	2	3	4	5	6	7	8	9	10	11
	BATH UNIT, Portable									
4510-01-139-4973	Engineered Air Systems, Inc.		1982	All Serial Nos.	15	1-4	5-8	9-12	13-14	15
	SHOWER, Portable, 12 Head									
4510-01-163-6775	12 Head Shower		1996	All Serial Nos.	15	1-4	5-8	9-12	13-14	15

**APPENDIX B
EXPENDITURE LIMITS FOR FSC CLASS 4520.**

FSC or NSN	Item Identification	TM Number/Remarks	Production Year	Serial Number Range	Years of Life Expectancy	Repair Limitations				
						55%	50%	40%	30%	20%
1	2	3	4	5	6	7	8	9	10	11
	HEATER, SPACE, MULTIFUEL 60,000 BTU/HR									
4520-00-280-1830	Hunter Model UH68E			All Serial Nos.	15	Overage				
4520-00-114-1055	Hunter Model UH68D		1965		15	Overage				
4520-01-050-5628	Hunter Model UH68F		1976		15	Overage				
4520-01-203-4410	Hunter Model UH68G		1985		15			15		
4520-01-297-6803	Hunter Model UH68G-1	TM 5-4520-253-13	1989		15		15			
4520-01-068-2968	Hunter Model UH68-4									
	* HEATER, SPACE, RADIANT, PORTABLE, 45,000 BTU/HR									
4520-01-354-1191	Hunter Model H45I Solid Fuel			All Serial Nos.	6					
4520-01-329-3451	Hunter Model H45II Liquid Fuel			All Serial Nos.	6					
	HEATER SPACE									
4520-01-444-2375	Heater, Space, Artic			All Serial Nos.	6					

**APPENDIX B
EXPENDITURE LIMITS FOR FSC CLASS 4520 – Continued.**

FSC or NSN	Item Identification	TM Number/ Remarks	Production Year	Serial Number Range	Years of Life Expectancy	Repair Limitations				
						55%	50%	40%	30%	20%
1	2	3	4	5	6	7	8	9	10	11
	HEATER, DUCT TYPE, 400,000 BTU, GAS ENGINE, TRAILER MTD									
4520-00-223-3221	AAF Model BT 400-40-1A	TM 5-4520-208-15		All Serial Nos.	14					
4520-00-915-7789	AAF Model BT 400-40-1	TM 5-4520-208-15		All Serial Nos.	14					
4520-00-792-8257	AAF Model BT 400-40	TM 5-4520-208-15	1966	All Serial Nos.	14					
	<i>MEL=40% on following 4 NSNs</i>									
4520-01-071-7191	Fiesta Model FC-400-1	TM 5-4520-244-14	1978	All Serial Nos.	18					
4520-01-136-2139	Hunter Model 4-400500		1985	All Serial Nos.	18					
4520-00-980-3199	Hunter Model PH400	TM 5-4520-251-14	1966	All Serial Nos.	18					
4520-01-165-9477	C. Way Model CW400-4			All Serial Nos.						
	HEATER, DUCT TYPE, 250,000 BTU, PORTABLE, GAS W/WILSTD ENGINE									
	<i>MEL=0% on all 25OK BTU Htrs</i>									
4520-00-086-7676	Bashan-Morley Model PHDT250	TM 10-4520-201-14	1972	All Serial Nos.						
4520-00-873-6830	VBM Model BV68 IDPE				13	Overage				
4520-00-856-5983	Vogt Bros Model VB3077CS61- 62		1962	All Serial Nos.	13	Overage				

**APPENDIX B
EXPENDITURE LIMITS FOR FSC CLASS 4520 – Continued.**

FSC or NSN	Item Identification	TM Number/Remarks	Production Year	Serial Number Range	Years of Life Expectancy	Repair Limitations				
						55%	50%	40%	30%	20%
1	2	3	4	5	6	7	8	9	10	11
4520-00-937-6168	Vogt Bros Model V67GFC3		1968	All Serial Nos.	13	Overage				
4520-00-255-5051	Keco Model H250	TM 10-4520-201-14	Various	All Serial Nos.	14	Overage				
4520-00-001-7726	VBM Model 250	TM 5-4520-224-14	Various	All Serial Nos.	14	Overage				
4520-01-167-6532	VBM Model 250-A	TM 5-4520-224-14	Various			Overage				
4520-00-873-6563	AAF Model 5-13-2002-1					Overage				
	HEATER, SPACE, OIL FIRED, 70,000 BTU/HR									
4520-00-540-0557	Preway Model 444-5A			All Serial Nos.	6	1-2		3-5	6	
	** HEATERS, ELECTRIC									
4520-00-115-0372				All Serial Nos.	8	1-3	4	5-6	7-8	
4520-00-177-6198				All Serial Nos.	8	1-3	4	5-6	7-8	
4520-00-224-7909				All Serial Nos.	8	1-3	4	5-6	7-8	
4520-00-779-0698				All Serial Nos.	8	1-3	4	5-6	7-8	
	HEATER, SPACE, MULTIFUEL W/BLOWER 15,000 BTU/HR, Type I, 120V, 50/60H, Single Phase									
4520-01-010-0316	Hunter Model UH48C		1976-77	All Serial Nos.	8	1-2	3-6	7	8	

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**APPENDIX B
EXPENDITURE LIMITS FOR FSC CLASS 4520 – Continued.**

FSC or NSN	Item Identification	TM Number/Remarks	Production Year	Serial Number Range	Years of Life Expectancy	Repair Limitations				
						55%	50%	40%	30%	20%
1	2	3	4	5	6	7	8	9	10	11
	<i>Type III, 24VDC</i>									
4520-01-032-7363	VBM Model VBM-15-IV		1976							
4520-01-069-6959	Hunter Model UH 48-D		1975							
	<i>Type IV, 28VDC</i>									
4520-01-010-4059	Hunter Model UH48C	TM 5-4520-240-14	1976-77	All Serial Nos.	8	1-2	3-6	7	8	
4520-01-368-9594	Hunter Model UH48E	TM 9-4520-260-13	1995	All Serial Nos.	8	1-2	3-6	7	8	
	HEATER, DUCT TYPE, 250,000 BTU, PORTABLE, GASOLINE W/AU8 COMMERCIAL TYPE ENGINE									
4520-00-752-9458	Hunter Model PH25 (Herman Nelson)		1960	All Serial Nos.	10	Overage				
4520-00-448-0413	Vogt Bros V3077SC60		1960	All Serial Nos.		Overage				
4520-00-001-7726	VBM Model 250			All Serial Nos.		Overage				
4520-00-238-8899	Herman Nelson		1960	All Ser. Nos.		Overage				
	All 250K BTU Heater Models have 0% (Zero) MEL									
	ARMY SPACE HEATER, DIESEL (ASH) 120,000 BTU/HR									
4520-01-253-4865	EASI Model H81	TM 5-4520-254-12	1987		15		1-5	6-8	9-12	13-15
4520-01-254-8548	EASI Model H82	TM 5-4520-256-14	1987		15		1-5	6-8	9-12	13-15

**APPENDIX B
EXPENDITURE LIMITS FOR FSC CLASS 4520 – Continued.**

FSC or NSN	Item Identification	TM Number/Remarks	Production Year	Serial Number Range	Years of Life Expectancy	Repair Limitations				
						55%	50%	40%	30%	20%
1	2	3	4	5	6	7	8	9	10	11
4520-01-332-2394	EASI Model H83	TM 5-4520-256-14	1991		15		1-5	6-8	9-12	13-15
4520-01-367-2739	EASI Model H120	TM 5-4520-258-14	1996		15		1-5	6-8	9-12	13-15
4520-01-439-1682	EASI Model H120-1	TM 5-4520-258-14	1997		15		1-5	6-8	9-12	13-15


** These heaters managed by DLA

* These electric heaters managed by Natick

By Order of the Secretary of the Army:

GEORGE W. CASEY, JR.
General, United States Army
Chief of Staff

Official:


JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army
0708506

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The following format must be used if submitting an electronic 2028. The subject line must be exactly the same and all fields must be included; however, only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17, and 27.

From: "Whomever" <whomever@avma27.army.mil>

To: amssbriml@natick.army.mil

Subject: DA Form 2028

1. From: Joe Smith
2. Unit: home
3. Address: 4300 Park
4. City: Hometown
5. St: MO
6. Zip: 77777
7. Date Sent: 19-OCT-93
8. Pub no: 55-2840-229-23
9. Pub Title: TM
10. Publication Date: 04-JUL-85
11. Change Number: 7
12. Submitter Rank: MSG
13. Submitter FName: Joe
14. Submitter MName: T
15. Submitter LName: Smith
16. Submitter Phone: 123-123-1234
17. Problem: 1
18. Page: 2
19. Paragraph: 3
20. Line: 4
21. NSN: 5
22. Reference: 6
23. Figure: 7
24. Table: 8
25. Item: 9
26. Total: 123
27. Text:

This is the text for the problem below line 27.

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is ODISC4.						Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE 21 October 2003
TO: (Forward to proponent of publication or form) (Include ZIP Code) US ARMY TANK AUTOMOTIVE AND ARMAMENT COMMAND ATTN: AMSTA-LC-SECT 15 KANSAS ST NATICK, MA 01760-5052						FROM: (Activity and location) (Include ZIP Code) PFC JANE DOE Co A 3 RD Engineer Br. Ft Leonard Wood, MO 63108	
PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS							
PUBLICATION/FORM NUMBER TM 10-1670-296-23&P						DATE 30 October 2002	TITLE Unit Manual for Ancillary Equipment for Low Velocity Air Drop Systems
ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON (Provide exact wording of recommended changes, if possible).	
	0036 00-2				1	<i>In Table 1, Sewing Machine Code Symbols, the second sewing machine code symbol should be MDZZ not MD22</i> <i>Change the manual to show Sewing Machine, Industrial: Zig-Zag; 308 stitch; medium-duty; NSN 3530-01-181-1421 as a MDZZ code symbol.</i>	
*Reference to line numbers within the paragraph or subparagraph.							
TYPED NAME, GRADE OR TITLE Jane Doe, PFC				TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION (508) 233-4141 DSN 256-4141		SIGNATURE Jane Doe <i>Jane Doe</i>	

TO: <i>(Forward direct to addressee listed in publication)</i> US ARMY TANK AUTOMOTIVE AND ARMAMENT COMMAND ATTN: AMSTA-LC-SECT 15 KANSAS ST NATICK, MA 01760-5052	FROM: <i>(Activity and location) (Include ZIP Code)</i> PFC JANE DOE Co A 3 RD Engineer Br. Ft Leonard Wood, MO 63108	DATE 21 October 2003
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PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER TM 10-1670-296-23&P	DATE 30 October 2002	TITLE Unit Manual for Ancillary Equipment for Low Velocity Air Drop Systems
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PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION
0066 00-1					4			<i>Callout 16 in figure 4 is pointed to a <u>D-Ring</u>. In the Repair Part List key for Figure 4, item 16 is called a <u>Snap Hook</u>. Please correct one or the other.</i>

PART III – REMARKS *(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
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RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS						Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
For use of this form, see AR 25-30; the proponent agency is ODISC4.							
TO: (Forward to proponent of publication or form) (Include ZIP Code) Commander U.S. Army Tank-automotive and Armament Command ATTN: AMSTA-LC-SECT Kansas Street, Natick, MA 01760-5052.						FROM: (Activity and location) (Include ZIP Code)	
PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS							
PUBLICATION/FORM NUMBER TB 43-0002-23				DATE 11 April 2007		TITLE MAINTENANCE EXPENDITURE LIMITS FOR FSC GROUP 45, FSC CLASSES 4510, 4520	
ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON (Provide exact wording of recommended changes, if possible).	
*Reference to line numbers within the paragraph or subparagraph.							
TYPED NAME, GRADE OR TITLE				TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION		SIGNATURE	

TO: <i>(Forward direct to addressee listed in publication)</i> Commander U.S. Army Tank-automotive and Armament Command ATTN: AMSTA-LC-SECT Kansas Street, Natick, MA 01760-5052.	FROM: <i>(Activity and location) (Include ZIP Code)</i>	DATE
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PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER TB 43-0002-23	DATE 11 April 2007	TITLE MAINTENANCE EXPENDITURE LIMITS FOR FSC GROUP 45, FSC CLASSES 4510, 4520
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PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

PART III – REMARKS *(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
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RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS						Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
For use of this form, see AR 25-30; the proponent agency is ODISC4.							
TO: (Forward to proponent of publication or form) (Include ZIP Code) Commander U.S. Army Tank-automotive and Armament Command ATTN: AMSTA-LC-SECT Kansas Street, Natick, MA 01760-5052.						FROM: (Activity and location) (Include ZIP Code)	
PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS							
PUBLICATION/FORM NUMBER TB 43-0002-23				DATE 11 April 2007		TITLE MAINTENANCE EXPENDITURE LIMITS FOR FSC GROUP 45, FSC CLASSES 4510, 4520	
ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON <i>(Provide exact wording of recommended changes, if possible).</i>	
<i>*Reference to line numbers within the paragraph or subparagraph.</i>							
TYPED NAME, GRADE OR TITLE				TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION		SIGNATURE	

TO: <i>(Forward direct to addressee listed in publication)</i> Commander U.S. Army Tank-automotive and Armament Command ATTN: AMSTA-LC-SECT Kansas Street, Natick, MA 01760-5052.	FROM: <i>(Activity and location) (Include ZIP Code)</i>	DATE
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PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

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PART III – REMARKS *(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
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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 decigrams = .035 ounce
 1 dekagram = 10 grams = .35 ounce
 1 hectogram = 10 dekagrams = 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 feet

Approximate Conversion Factors

<i>To change</i>	<i>To</i>	<i>Multiply by</i>	<i>To change</i>	<i>To</i>	<i>Multiply by</i>
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 temperature $\times \frac{5}{9}$ (after subtracting 32) = Celsius temperature °C

PIN: 030330-000