

INCH-POUND

MIL-DTL-32092

November 8, 2001

SUPERSEDING

KK-L-2004

November 15, 1976

MILITARY DETAILED SPECIFICATION LEATHER, CATTLEHIDE, DEERSKIN AND HORSEHIDE, CHROME TANNED

This specification is approved for use by all Department and Agencies of the Department of Defense.

1. **SCOPE** This Military Detailed Specification covers the requirements for full grain cattlehide, deerskin and horsehide; and the cattlehide flesh splits.

1.2 **CLASSIFICATION**. The leather will be in the following types:

Type I - Cattlehide, full grain, for garments and equipage

Type II - Deerskin, full grain, for garments and equipage

Type III - Horsehide, full grain for garments and equipage

Type IV - Cattlehide, flesh splits for garments and equipage

(Classes 1 and 2 are applicable to types I, II, III and IV only)

Class 1 - Mildew resistant treated

Class 2 - Not mildew resistant treated

Type V - Cattlehide, full grain for gloves

Type VI - Deerskin, full grain for gloves

Type VII - Horsehide, full grain for gloves

Type VIII - Cattlehide flesh splits for gloves

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Defense Supply Center Philadelphia, Clothing and Textiles Directorate, Attn: DSCP-COC, bld 6-1-D, 700 Robbins Ave, Philadelphia, PA 19111-5096.

AMSC N/A

FSC 8330

MIL-DTL-32092

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Non-Government publications. The following document(s) form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS

- D- 6075 Cracking Resistance of Leather
- D- 2209 Tensile Strength of Leather
- D- 3495 Hexane Extraction of Leather
- D- 2617 Total Ash in Leather
- D- 6076 Shrinkage temperature of leather
- D- 2807 Chromic Oxide Content by Perchloric Acid Oxidation Test
- D- 2810 pH of Leather
- D- 4925 Flexibility and Adhesion of Finish on Leather
- D- 6012 Determination of Resistance of Glove Leather to Bleeding
- D- 5053 Resistance to Crocking of Leather
- D- 4705 Stitch tear Strength Double Hole
- D-2821 Measuring the Relative Stiffness of Leather by means of a Torsional Wire Apparatus

(Applications for copies should be addressed to American Society For Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428.)

ANSI/ASQC Z1.4

(Applications for copies should be addressed to ANSI/ASQC American Society for Quality Control 611 East Wisconsin Ave. , Milwaukee WI 53202)

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of Precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated specifications or specification sheets), the text of this document takes precedence. Nothing in this document however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

MIL-DTL-32092

3. REQUIREMENTS

3.1 Materials. The lace leather and cut laces shall be full grain cattlehide. The flesh side of the leather shall be smooth and free of coarse loose flesh.

3.1.1 Types I, II and III. The leather shall be full grain cattlehide, deerskin or horsehide as required for the type specified (see 1.2 and 6.2) and shall be suitable for use in garments and equipage. The flesh side of the leathers shall be smooth and free and loose flesh.

3.1.2 Type IV. The leather shall be flesh splits obtained from cattlehide bends. The leather shall be suitable for use in garments and equipage. Both sides of the leather shall be smooth and free of loose flesh. Middle splits, head splits, belly splits and shoulder splits shall not be used.

3.1.3 Types V, VI and VII. The leather shall be full grain cattlehide deerskin or horsehide as required for the type specified (see 1.2 and 6.2) and shall be suitable for use in gloves. The flesh side shall be smooth and free of loose flesh.

3.1.4 Type VIII. The leather shall be flesh splits from cattlehide bends. The leather shall be suitable for use in gloves. Both sides of the leather shall be smooth and free of loose flesh. Middle splits, head splits, belly splits and shoulder splits shall not be used.

3.2 Tannage. The leather shall be chrome tanned.

3.3 Physical requirements.

3.3.1. Trim (form and area). Types I and V cattlehide leather shall be furnished in the form of whole hides or sides. Types II and VI deerskin leather shall be furnished in the form of whole skins. Types III and VII horsehide shall be furnished in the form of horsehide fronts. Types IV and VIII cattlehide flesh splits shall be furnished in the form of bends. The area of the leather in terms of square feet shall be legibly marked on the butt end of the flesh side.

3.3.2. Thickness. The thickness of the leather shall be as specified (see 6.2). A thickness tolerance of $\pm \frac{1}{2}$ ounce is permitted.

NOTE: 1 ounce = 1/64 inch

3.3.3 Color. The color of the of the leather shall be as specified (see 6.2). Both sides of the leather shall be the same color. Slight color variations on the flesh side resulting from buffing or shaving the leather shall be permitted.

3.3.4 Dyeing. The leather shall be drum dyed.

3.3.5 Finish. The grain side of types I, II and III leather shall have a light application of finish and dye containing only sufficient pigment to assist in making the color uniform. No finish shall be applied to types IV, V, VI, VII and VIII leather.

3.3.6 Finish stability (types I, II and III). The finish shall not crack, flake, part from the leather or become tacky when tested as specified in 4.3.

MIL-DTL-32092

3.3.7. Staining (type I, II and III). Unless otherwise specified (see 6.2) the stain on the test pad shall have an expanded AATCC value of not less 4 when the leather is tested for staining in accordance with 4.3.

3.3.8 Colorfastness (types I, II, III, V, VI and VII). The leather shall be tested for resistance to dry and wet crocking in accordance with 4.3. Unless otherwise specified (see 6.2), staining of the dry cloth shall be not lower numerically than Munsell value 8.5 and staining of the wet cloth shall be not lower numerically than Munsell Value 8.0.

3.3.9 Cracking (types I, II and III). The grain surface or the finish shall not crack or part from the leather when tested as specified in 4.3.

3.3.10 Shrinkage temperature.

3.3.10.1 Types I, III, IV, V, VII and VIII. Shrinkage of the leather shall not occur at a temperature below 97°C when the leather is tested as specified in 4.3.

3.3.10.2 Types II and VI. Shrinkage of the leather shall not occur at a temperature below 92°C when the leather is tested as specified in 4.3.

3.3.11 Elongation. At least 80 percent of the specimens tested shall meet the following elongation values at a load of 25 pounds when tested as specified in 4.3. Any specimen that ruptures or shows grain crack below 25 pounds shall be reported a failing specimen.

<u>Types</u>	<u>Elongation percent</u>	
	<u>Minimum</u>	<u>Maximum</u>
I, II, V, IV	25.0	60.0
V, VI, VII, VIII	25.0	-----

3.3.12 Stitch tearing strength. At least 80 percent of the specimens tested shall meet the stitch tearing strength values indicated below when tested as specified in 4.3.

<u>Types</u>	<u>Thickness of Leather (ounces)</u>	<u>Stitch Tearing strength pounds, minimum</u>
I, IV, V, VIII	2- ½ and less	17.0
	Over 2-1/2	30.0
II, VI	2 and less	15.0
	Over 2	20.0
III, VII	2- ½ and less	20.0
	Over 2-1/2	30.0

MIL-DTL-32092

3.3.13 Stiffness. At least 80 percent of the specimens tested shall have stiffness values as indicated below when tested as specified in 4.3.

<u>Types</u>	<u>Thickness of leather (ounces)</u>	<u>Stiffness Value before soaking (degrees, maximum)</u>	<u>Stiffness Value after soaking (degree maximum)</u>
V, VII	2-1/2 or less	116	132
	Over 2-1/2	260	320
VI	2 or less	60	$\frac{1}{1}$
	Over 2	90	$\frac{1}{1}$
VIII	Over 2	260	320

$\frac{1}{1}$ Type VI leather shall not be tested for stiffness after soaking.

3.3.14 Fungicide. Unless otherwise specified (paragraph 6.2), one of the following leather fungicides is required.

3.3.14.1 2- (thiocyanomethylthio) Benzothiazole. The leather shall contain not less than 100ppm and not more than 400ppm of active ingredient 2- (thiocyanomethylthio) benzothiazole (TCMTB), (see paragraph 4.4.1).

3.3.14.2 Ortho- Phenyl Phenol. The leather shall not contain less than 540 ppm and not more than 2580 ppm. (see paragraph 4.4.2)

3.3.14.3 Diiodomethyl para Tolysulfone. The leather shall contain not less than 300 ppm and not more than 2000 ppm. (see paragraph 4.4.3)

3.4 Chemical requirements

3.4.1 The leather shall conform to the chemical requirements of table I when tested as specified in 4.5.

TABLE I Chemical requirements

<u>Characteristic</u>	<u>Minimum</u>	<u>Maximum</u>
Chloroform-soluble material, percent $\frac{1}{1}$	--	25.0
Total ash, percent $\frac{1}{1}$		
Type I, II, III, V, VI, VII	-	9.0
Type IV and VIII	-	12.0

MIL-DTL-32092

TABLE I Chemical requirements (con't)

Characteristic	Minimum	Maximum
Chromic oxide, percent <u>1/</u>	3.0	---
PH value	3.3	---

1/ Moisture free basis.

3.5 Workmanship. The finished leather shall conform to the quality established by this specification. The occurrence of defect shall not exceed the applicable acceptable levels.

4.0 VERIFICATION.

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

4.1.1 Certificate of compliance. Where certificates of compliance are submitted, the government reserves the right to check test such items to determine the validity of the certification.

4.2 Conformance inspection. Sampling for inspection shall be in accordance with the provisions of ANSI/ASQC Z1.4, except where otherwise indicated hereinafter.

4.2.1 Component and material inspection. In accordance with 4.1 above, components and material shall be tested in accordance with all the requirements of referenced specification, drawings, and standards unless otherwise excluded, amended, modified, or qualified in this specification or applicable purchase document.

4.2.2 Examination of the end item. The classification of defects found during the examination shall be in accordance with the lists shown in 4.2.2.1 and 4.2.2.2. The sample unit for these examinations shall be one hide, side, skin, front or bend as required for the type specified. A sample size of 15 and a rejection number of 2 shall be applicable for thickness determinations on lots consisting of 51 or more units of product. Separate examinations shall be performed for visual and dimensional characteristics, but the same sample may be used for each examination.

MIL-DTL-32092

4.2.2.1 Examination for visual characteristics.

<u>Examine</u>	<u>Defect</u>
Type I,II,III,V,VI,VII	Not full grain
Type IV, VIII	Not flesh spits
Trim	
Type I, V	Not in the form of a whole hide or side
Type II, VI	Not in the form of a whole skin
Type III, VII	Not in the form of a front
Type IV, VIII	Not in the form of a bend
Color	Not as specified Not the same color on both sides
Dyeing	Not drum dyed
Finish	
Type I, II, III	Finish missing on grain side
Type IV, V, VI, VII, VIII	Any application of finish
Quality of leather	Not clean; stain or other foreign matter, Coarse loose fiber on flesh side, Not soft and pliable, hard bony, boardy, or Loose spongy leather. Any cut, hole brand, hip mark, scratch Heavy vein, deep wrinkle, or surface imperfections Which individually or collectively impair the Cutting value of more than 12 percent of the Total area of the side, whole hide, skin, front or bend.

NOTE: Light, well healed scratches and grub holes, light fat wrinkles, and slight stains
Shall not be classified as defects.

MIL-DTL-32092

4.2.2.2 Examination for dimensional characteristics.

<u>Examine</u>	<u>Defect</u>
Area (expressed in Terms of square feet)	Not as marked on leather
Marking	Omitted
Thickness <u>1/</u>	Not as specified

1/ Thickness shall be measured in accordance with ASTM-D-1814

4.3 End item testing. The methods of testing specified in ASTM wherever applicable and as listed in table IV, shall be followed. Sampling procedure and location from which the sample unit is to be obtained shall be in accordance with ANSI/ASQC Z1.4. All test reports shall contain the individual values utilized in expressing the final result . The lot shall be rejected if any one of the following conditions exists:

- a. More than three test failures occur for elongation.
- b. More than 3 specimens fail to meet stitch tearing strength requirements
- c. More than 3 specimens fail to meet stiffness requirements
- d. More than one test failure occurs for the remaining requirements applicable to the sample unit.
- e. Any composite fails to meet the specified requirement.

TABLE II Tests

Characteristic	Requirement paragraph	Test method	Sample unit	Requirement <u>Applicable to</u> Composite sample
Material	3.1	<u>1/</u>		—
Tannage	3.2	<u>1/</u>		—
Finish stability (Types I,II,III)	3.3.6	ASTM-D-4925 <u>2/</u>	X	—
Staining (types I,II,II)	3.3.7	ASTM-D-6012	X	—

MIL-DTL-32092

TABLE II Tests (Con't)

Characteristic	Requirement paragraph	Test method	Sample unit	Requirement Applicable to Composite sample
Colorfastness Types I,II,III,V,VI,VII	3.3.8	ASTM-D-5053	X	—
Elongation	3.3.11	ASTM-D-2209	X	—
Cracking ,low temperature (types I,II,II)	3.3.9	ASTM-D-6075	X	—
Stitch tear strength	3.3.12	ASTM-D-4705	X	—
Shrinkage temperature	3.3.10	ASTM-D-6076	X	—
Stiffness (Types V, VI, VII, VIII)	3.3.13	ASTM-D-2821	X	—
Chloroform-soluble material	3.4.1	ASTM-D-3495	—	X
Total ash	3.4.1	ASTM-D-2617	—	X
PH value	3.4.1	ASTM-D-2810	—	X
Chromatic oxide	3.4.1	ASTM -D-2807	—	X
Fungicide (class I)	3.3.14	para 4.4	-	X

1/ Unless otherwise specified, a certificate of compliance is required and will be acceptable for the stated requirement.

2/ Exception to ASTM-D-4925: The grain surface of the folded specimen shall be rubbed together under moderate pressure. The duration of the rubbing shall be 30 seconds.

4.3.2 Cracking. The leather shall be tested for cracking in accordance with ASTM-D-6075. The diameters of the mandrels shall be 1/8 inch.

MIL-DTL-32092

4.3.3 Cracking, low temperature (types I, II, III). The leather shall be tested for cracking in accordance with ASTM-D-6075 except that the specimen shall be a 4 by 1 inch rectangle of leather. The specimen shall be folded twice upon itself by folding the specimen along the length dimension with the flesh side in the then folding again at right angles to the original fold. The specimen shall be observed with the naked eye and the presence of cracking or parting of the finish from the leather shall be reported.

4.3.4 Measurement of stiffness (before and after soaking).

4.3.4.1 Stiffness before soaking (types V, VI, VII, VIII). The specimen shall be tested for stiffness in accordance with ASTM-D-6075 .

4.3.4.2 Stiffness after soaking (types V, VII, VIII). If the stiffness requirements specified for before soaking are not met, then do not test for the stiffness after soaking. Any individual specimen exceeding the maximum stiffness values specified for before soaking shall not be tested for stiffness after soaking. The specimens shall be immersed in 1000 milliliters of distilled water at $140^{\circ} \pm 5^{\circ} \text{ F}$ ($60^{\circ} \pm 3^{\circ} \text{ C}$) for 20 ± 2 hours. Complete immersion of the specimens shall be accomplished by placing a floating cover on the vessel used for immersion of the specimens. After the required immersion period, the specimens shall be removed from the water and reconditioned in accordance with standard atmospheric conditions as specified in the test method. The reconditioned specimens shall be placed flesh side down on a rule graduated in decimal inches and the distance between the bench marks shall be measured to the nearest 0.05 inch. If the distance is 3.4 to 3.6 inches, test the specimen in accordance with ASTM-D-6075. If the distance is 3.2 inches or less, the specimen shall be reported as a test failure. If the distance between bench marks is 3.25 to 3.35 inches, the specimen shall be stretched before testing. To stretch the specimen, place the specimen on the rule and align line one of the bench marks with a division line on the rule. Hold the specimen against the rule by placing the finger tip of one hand on the aligned bench mark. With the thumb and index finger of the other hand, lightly grip the specimen near the aligned bench mark, then slide the finger and thumb along the specimen to the other bench mark while exerting pressure on the specimen that is sufficient to obtain the required distance between the bench marks. If the required distance between the bench marks has been obtained (3.4 to 3.6 inches), test the specimens in accordance with ASTM-D-6075. If the distance between the bench marks is greater than 3.6 inches discard the specimen and test a new specimen selected from the same 8 by 8 inch test sample of leather from which the discarded specimen was obtained. The new specimen shall be tested for stiffness before and after soaking. The test results obtained when the discarded specimen was tested for stiffness before soaking shall not be reported.

4.4 Fungicide

4.4.1 TCMTB. Testing to determine the concentration of Busan 30 L in the leather shall be conducted by using Buckman Laboratories standard test method for 2- (Thiocyanomethylthio) Benzothiazole Analysis of Leather by HPLC. This method may be obtained by contacting Buckman Laboratories at 1256 North McLean Blvd., Memphis, TN 38108 (800) 282-5625.

4.4.2 Ortho-phenyl phenol. Testing to determine chemical concentration in leather shall be conducted in accordance with Test I, Type I of the MIL-L-8067 specification.

MIL-DTL-32092

4.4.3 Diiodomethyl para Tolysulfone. The chemical concentration in the leather shall be conducted using the High Pressure Liquid Chromatography (HPLC) test method as follows:

4.4.3.1 Grinding. Grind the leather according to paragraph 6.3.7 of ASTM Method D2813 Standard Practice for Sampling Leather for Physical and Chemical Tests.

4.4.3.2 Stock Standard Preparation. Weigh accurately approximately 100mg of Diiodomethyl-para-tolylsulfone Internal Reference Standard (IRS), into a 100ml volumetric flask. Add approximately 50ml of acetonitrile, stopper and sonicate to aid dissolution (about 1 minute). Dilute to volume with acetonitrile.

4.4.3.3 Working Standards Preparation. Transfer 3ml aliquots of the Stock Standard Preparation in to 25, 50, 100, and 250ml volumetric flasks. Dilute to volume with acetonitrile. These standards contain approximately 12, 30, 60 and 120ppm of Diiodomethyl-para-tolylsulfone.

Note: (1) A lower standard may be required for samples containing very low levels of Diiodomethyl para tollysulfone

(2) Solutions must be stored in darkness to prevent degradation. Minimize exposure to light during preparation and use. The Standard Preparations may be retained one month.

(3) Internal Reference Sample (IRS) is available from Chemtan Company, Inc., P.O. Box C, Exeter, NH 03833 Tel.: 603-772-3741

4.4.3.4 Sample preparation. Accurately weigh approximately 3 to 5g of sample into a 150ml beaker. Add 75-100ml of acetonitrile. Cover samples with parafilm; mix 16 to 24 hours on magnetic stir plate. The following day, allow samples to settle; remove necessary amount of acetonitrile and inject Note: Samples may have to be diluted further to fall within standard curve.

4.4.3.5 Testing equipment:

- a. HPLC System with variable UV detector and integrating computer. Suitable syringe and glassware.
- b. A micro-Bondapak C18 column (Waters Associates P/N 2734) or equivalent.
- c. 0.45-micron polycarbonate filters (Nuclepore Corporation, Catalog No. 111107) or equivalent.
- d. Calculator capable of doing linear regression.
- e. Reagents: Acetonitrile (Chromatographic grade).

MIL-DTL-32092

4.4.3.5.1 Typical mobile phase. Mix 550ml of distilled water and 450ml of acetonitrile. Filter and degas the solution. The concentration may be varied to meet system suitability requirements within range 50% to 40% acetonitrile.

4.4.3.5.2 Typical chromatographic conditions:

Injection Volume	20 Microliters
Flow	2.5 ml/minute
Detector	235 nm

4.4.3.6 System suitability. Inject the highest working standard until 2 percent agreement is reached between two successive injections. Chromatograph for approximately 15 minutes. Determine that, after the solvent front, one impurity peak elutes before the major peak. Elution for moniodomethyl-para-tolylsulfone is about 6 minutes and for Diiodomethyl-para-tolylsulfone is about 8.5 minutes.

4.4.3.7 Procedure. Inject each standard and sample preparation in duplicate allowing each injection to run for at least 15 minutes. Measure the peak response for the Diiodomethyl-para-tolylsulfone.

Note: The run time may have to be increased for samples with late eluting peaks. Perform a linear regression of peak response (area) versus concentration for each of the components.

For each component:

Concentration (ppm) in leather =

$$\frac{\text{Concentration (ppm) from linear regression.}}{\text{Sample wt(g)}} \times 75$$

5. PACKAGING.

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

MIL-DTL-32092

6. NOTES

6.1 Intended use. The leather is intended for use in gloves, garments, mittens and equipage.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification
- b. Type and class required (see 2.0)
- c. Thickness required (see 3.3.1.2 or 3.3.2.3)).
- d. Color when other than natural color is required (see 3.3.2)
- e. Packaging requirements (see 5.1)

6.3 Subject term (key word) listings.

Splits
Full grain
Mildew resistant
Fungicide

MILITARY INTERESTS:

Custodians

Army – GL
Navy - NU

Review Activities

ARMY – MD

PREPARING ACTIVITY:
DLA - CT

Project 8330-0208

MIL-DTL-32092

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL**INSTRUCTIONS**

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
 2. The submitter of this form must complete blocks 4, 5, 6, and 7 and send to preparing activity.
 3. The preparing activity must provide a reply within 30 days from receipt of the form.
- NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER	2. DOCUMENT DATE (YYYYMMDD)
	MIL-DTL-32092	November 8, 2001
3. DOCUMENT TITLE LEATHER, CATTLEHIDE, DEERSKIN, AND HORSEHIDE, CHROME TANNED		
4. NATURE OF CHANGE <i>(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)</i>		
5. REASON FOR RECOMMENDATION		
6. SUBMITTER		
a. NAME <i>(Last, First, Middle Initial)</i>	b. ORGANIZATION	
c. ADDRESS <i>(Include Zip Code)</i>	d. TELEPHONE <i>(Include Area Code)</i> (1) Commercial (2) DSN <i>(If applicable)</i>	7. DATE SUBMITTED (YYYYMMDD)
8. PREPARING ACTIVITY		
a. NAME DEFENSE SUPPLY CENTER PHILADELPHIA DSCP-COCT	b. TELEPHONE <i>(Include Area Code)</i> (1) Commercial (2) DSN (215) 737- 8035 444-8035	
c. ADDRESS <i>(Include Zip Code)</i> 700 Robbins Ave (Bldg 6, C&T) PHILADELPHIA, PA 19111-5092	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Standardization Program Office (DLSC-LM) 8725 John J. Kingman Road, Suite 2533 Fort Belvoir, Virginia 22060-6221 Telephone (703) 767-6888 DSN 427-6888	

PREVIOUS EDITION IS OBSOLETE

WHS/DIOR, Feb 99