#### INCH-POUND

MIL-T-12173D <u>26 October 1992</u> SUPERSEDING MIL-T-12173C(ME) 26 October 1984

#### MILITARY SPECIFICATION

#### TRAVELER, BICYCLE

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

1. SCOPE

1.1 <u>Scope</u>. This specification covers a bicycle traveler used as a component of a trail ferry in military stream-crossing operations.

2. APPLICABLE DOCUMENTS

#### 2.1 <u>Government documents</u>.

2.1.1 <u>Specifications and standards</u>. The following specifications and standards form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: USA Belvoir Research, Development, and Engineering Center, ATTN: SATBE-TSE, Fort Belvoir, VA 22060-5606 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 5420

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#### SPECIFICATIONS

FEDERAL

FF-B-575	- Bolts, Hexagon and Square.
FF-N-836	- Nut; Square, Hexagon, Cap, Slotted, Castle, Knurled,
	Welding and Single Ball Seat.
FF-P-386	- Pins, Cotter (Split).
RR-C-271	- Chains and Attachments, Welded and Weldless.
RR-W-410	- Wire Rope and Strand.
GGG-B-490	- Blocks, Tackle (Manila and Nylon Rope).
PPP-B-601	- Boxes, Wood, Cleated-Plywood.
PPP-B-621	- Boxes, Wood, Nailed and Lock-Corner.
PPP-B-640	- Boxes, Fiberboard, Corrugated, Triple-Wall.
TT T T M A D 17	

MILITARY

MIL-P-116	-	Preservation,	Methods of.
MIL-T-704	-	Treatment and	Painting of Materiel.

STANDARDS

FEDERAL

FED-STD-595	-	Colors,	Used	in	Government	Procurement.
MILITARY						

MIL-STD-105	- Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129	- Marking for Shipment and Storage.
MIL-STD-889	- Dissimilar Metals.

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.1.2 <u>Other Government drawings</u>. The following other Government drawings form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those in effect on the date of the solicitation.

#### DRAWINGS

TA13220E9170 - Traveler, Bicycle.

(Copies of drawings required by contractors in connection with specific acquisition functions should be obtained from the USA Belvoir Research, Development and Engineering Center, ATTN: SATBE-JBS, Fort Belvoir, VA 22060-5606.)

2.2 <u>Non-Government publications</u>. The following documents 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 OF MECHANICAL ENGINEERS (ASME)

Boiler and Pressure Vessel Code, Section IX, Welding Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators.

(Application for copies should be addressed to the American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

A 36	- Structural Steel.
A 53	- Pipe, Steel, Black, and Hot-Dipped, Zinc-Coated,
	Welded and Seamless.
A 148/A 148 M	- Steel Castings, High Strength, for Structural
	Purposes.
A 519	- Seamless Carbon and Alloy Steel Mechanical Tubing.
B 438	- Sintered Bronze Bearings (Oil Impregnated).
B 584	- Copper Alloy Sand Castings for General Application.
D 3951	- Packaging, Commercial.
D 3953	- Strapping, Flat Steel and Seals.
D 4675	- Selection and Use of Flat Strapping Materials.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

AMERICAN WELDING SOCIETY (AWS)

A 5.1	- Carbon Steel Electrodes for Shielded Metal Arc
	Welding.
A 5.18	- Carbon Steel Filler Metals for Gas Shielded Arc
	Welding.
D 1.1	- Structural Welding Code - Steel.

(Application for copies should be addressed to the American Welding Society, 550 N.W. LeJeune Road, P.O. Box 351040, Miami, FL 33135.)

(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 detail specifications, specification sheets or MS standards), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 <u>Description</u>. The bicycle traveler shall be as shown on top assembly drawing TA13220E9170 and as specified herein.

3.1.1 <u>Drawings</u>. The drawings forming a part of this specification are end product drawings. No deviation from the prescribed dimensions or tolerances is permissible without prior approval of the contracting officer. Where tolerances could cumulatively result in incorrect fits, the contractor shall provide tolerances within those prescribed on the drawings to ensure correct fit, assembly, and operation of the bicycle traveler. Any data (e.g. shop drawings, layouts, flow sheets, processing procedures, etc.) prepared by the contractor or obtained from a vendor to support fabrication and manufacture of the production item shall be made available, upon request, for inspection by the contracting officer or the designated representative.

3.2 <u>First article</u>. Unless otherwise specified (see 6.2), a sample shall be subjected to first article inspection (see 6.3) in accordance with 4.3.

3.3 <u>Material</u>. Material shall be as specified herein and as shown on the drawing. Materials not specified shall be selected by the contractor and shall be subject to all provisions of this specification.

3.3.1 <u>Material deterioration prevention and control</u>. The bicycle traveler shall be fabricated from compatible materials, inherently corrosion resistant, or treated to provide protection against the various forms of corrosion and deterioration that may be encountered in any of the applicable operating and storage environments to which bicycle traveler may be exposed.

3.3.1.1 <u>Dissimilar metals</u>. Dissimilar metals shall not be used in intimate contact with each other unless protected against galvanic corrosion. Dissimilar metals and methods of protection are defined and detailed in MIL-STD-889.

3.3.1.2 <u>Identification of materials and finishes</u>. The contractor shall identify the specific material, material finish, or treatment for use with components and subcomponents, and shall make information available, upon request, to the contracting officer or designated representative.

3.3.2 <u>Recovered materials</u>. For the purpose of this requirement, recovered materials are those materials which have been collected from solid waste and reprocessed to become a source of raw materials, as distinguished from virgin raw materials. The components, pieces, and parts incorporated in the bicycle traveler may be newly fabricated from recovered materials to the maximum

extent practicable, provided the bicycle traveler produced meets all other requirements of this specification. Used, rebuilt, or remanufactured components, pieces, and parts shall not be incorporated in the bicycle traveler.

3.3.3 <u>Structural steel</u>. Structural steel shall conform to ASTM A 36.

3.4 <u>Chain</u>. Chain shall conform to RR-C-271, type I, grade C, class 5, style 2, 0.105 or 7/64 inch diameter.

3.5 <u>Steel pipe</u>. Steel pipe shall conform to ASTM A 53, grade A, type S, black, standard weight, and plain end except the hydrostatic test will not be required.

3.6 <u>Steel tubing</u>. Steel tubing shall conform to ASTM A 519, MT 1020 condition HF, round shape.

3.7 <u>Sheaves</u>. Sheaves shall be cast steel of the following chemical composition:

Carbon	Manganese	Phosphorous	Sulphur
range	range	maximum	maximum
Percent	Percent	Percent	Percent
0.43-0.50	0.60-0.90	0.040	0.050

The rope groove shall be finished and flame hardened to a depth of 0.050 to 0.075 inch, Rockwell hardness of C45 to C55. The sheaves shall be equipped with oil-impregnated flange bearings conforming to ASTM B 438, grade 1, class optional, type II.

3.8 <u>Snatch blocks</u>. Snatch blocks shall conform to GGG-B-490, type III, galvanized sheave to a G90 coating description for 1-inch rope, swivel eye fitting to take 7/8-inch diameter bolt, except that the center pin shall be a button-head type held in place by a cotter pin.

3.9 Cotter pins. Cotter pins shall conform to FF-P-386, type B, class 3.

3.10 <u>Combination clamp and thimble</u>. The combination clamp and thimble shall be high-strength steel casting conforming to ASTM A 148, grade optional, to meet strength requirements with corrosion-resisting coating such as G90 hot dipped zinc. The clamp and thimble shall be made of two identical sections, each section being made of one-half of the clamp and one-half of the thimble. The sections shall be secured by two 1/2-inch diameter bolts. The clamp and thimble shall be designed so that the wire rope can be threaded through one side of the clamp over both sections of the thimble and through the other side of the clamp. The clamp and thimble shall be grooved for 1/2-inch wire rope and shall conform to the dimensions shown on figure 1. The clamp grooves shall be proportioned to give a positive clamping effect on the wire rope.

The combination clamp and thimble shall, after being subjected to a partial load and after the bolts have been retightened, develop 90 percent of the breaking strength of the wire rope.

3.11 <u>Wire rope</u>. Wire rope shall conform to RR-W-410, type I, class 2, construction optional, improved plow steel, fiber core, zinc-coated G90 (galvanized), preformed.

3.12 <u>Bolts, hinge pins, and nuts</u>. Bolts shall conform to FF-B-575, type III. Hinge pins shall be fabricated from unthreaded bolts. Nuts shall conform to FF-N-836, type II, style 4.

3.13 <u>Sling bridle</u>. The sling bridle shall be made of a high strength manganese bronze casting conforming to ASTM B 584, copper alloy UNS no. 86300. The sling bridle shall be designed to clamp on a 1/2-inch diameter singleline, two-leg sling and shall conform to the dimensions shown in figure 2. Splices shall not be used to attach the sling bridle to the sling. The sling bridle shall be easily installed or removed from the sling and shall not slip when unbalanced loads are lifted. The sling bridle shall lock itself in the sling and shall not cut, kink, or otherwise damage the sling.

3.14 <u>Welding electrodes</u>. Welding electrodes shall conform to AWS A 5.1 or A 5.18, classification and size as required for the operation.

3.15 <u>Identification marking</u>. The bicycle traveler shall be metal-die stamped as shown on the drawing. Die stamping shall be legible after painting.

3.16 <u>Treatment and painting</u>. The portions of the bicycle traveler and its components and parts normally painted shall be treated and painted in accordance with MIL-T-704, type B. Top coat color shall be olive drab 34088, FED-STD-595.

3.17 <u>Workmanship</u>. The fabricated bicycle traveler shall be free of sharp edges, slivers, or burrs.

3.17.1 <u>Steel fabrication</u>. Steel used in the fabrication of the bicycle traveler shall be free from laminations, kinks, and sharp bends. Steel shall be cut by shearing, sawing, or flame cutting. Burned surfaces of flame-cut material shall be ground or machined to remove ash and cooling checks. The straightening of material shall be done by methods that will not cause injury to the metal. Precautions shall be taken to avoid overheating, and heated metal shall be allowed to cool slowly.

3.17.2 <u>Welders and welding</u>.

3.17.2.1 <u>Welders and welding operators</u>. Before assigning any welder or welding operator to manual welding work covered by this specification, the contractor shall obtain certification that the welder or welding operator has passed qualification tests as prescribed by either AWS D 1.1 or the ASME code

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for the materials joined and the type of welding operation to be performed and that such qualification is effective as defined. contractors who only make horizontal welds need not qualify welders for "all position welding". The contractor is responsible for determining that automatic welding equipment operators are capable of producing quality welds in accordance with AWS and ASME codes. In the event of evidence of poor welds, the Government reserves the right to require retesting of any welder or welding operator (see 6.4).

3.17.2.2 Welding. The surface of parts to be welded shall be free from scale, paint, grease, and other foreign matter. Welding shall be done by the shielded metal-arc or gas metal-arc (MIG) process and shall conform to the provisions of either ASME or AWS Code. All welded parts shall be free from cracks and other imperfections that may reduce the effectiveness of the part. Work shall be positioned for flat welding when practicable. Before welding over previously deposited weld metal, all traces of slag shall be removed and the adjoining base metal shall be wire brushed clean.

3.17.3 <u>Interchangeability</u>. Like components shall be fabricated to be duplicates within the tolerances specified and shall be interchangeable.

3.17.4 <u>Castings</u>. All castings used on bicycle traveler shall be cleaned of harmful extraneous material, such as sand, dirt, pits, scale, and flux. Rework shall be limited to procedures which do not reduce strength or affect function.

4. QUALITY ASSURANCE PROVISIONS

4.1 <u>Responsibility for inspection</u>. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 <u>Responsibility for compliance</u>. All items must meet all requirements of sections 3 and 5. The inspections set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.1.2 <u>Component and material inspection</u>. The contractor is responsible for insuring that components and materials used are manufactured, examined, and tested in accordance with referenced specifications, standards, and drawings, as applicable.

4.2 <u>Classification of inspections</u>. The inspection requirements specified herein are classified as follows:

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- a. First article inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).
- c. Inspection of packaging (see 4.6).

4.3 First article inspection.

4.3.1 <u>Examination</u>. The first article bicycle traveler shall be examined for the defects specified in 4.5.1. Presence of one or more defects shall be cause for rejection.

#### 4.4 <u>Ouality conformance inspection</u>.

4.4.1 <u>Sampling for examination</u>. Sampling for examination shall be in accordance with MIL-STD-105. Sample size shall be determined by using MIL-STD-105, table I and table IIa. A lot shall be accepted when zero defects are found and rejected when one or more defects are found.

4.4.2 <u>Examination</u>. Samples selected in accordance with 4.4.1 shall be examined for the defects specified in 4.5.1.

4.5 Inspection procedure.

4.5.1 <u>Examination</u>. The bicycle traveler shall be examined as specified herein for the following defects:

Major

- 101. Components missing or not as specified (see 3.1).
- 102. Nonconformance to the dimensions shown on the drawing (see 3.1.1).
- 103. Materials not as specified (see 3.3).
- 104. Materials are not resistant to corrosion and deterioration or treated to be resistant to corrosion and deterioration for the applicable storage and operating environments (see 3.3.1).
- 105. Dissimilar metals as defined in MIL-STD-889 are not effectively insulated from each other (see 3.3.1.1).
- 106. Contractor does not have documentation available for identification of material, material finishes, or treatment (see 3.3.1.2).
- 107. Used, rebuilt, or remanufactured components, pieces, or parts incorporated in the bicycle traveler (see 3.3.2).
- 108. Chain not as specified (see 3.4).
- 109. Steel pipe not as specified (see 3.5).

- 110. Steel tubing not as specified (see 3.6).
- 111. Sheaves not as specified (see 3.7).
- 112. Snatch blocks not as specified (see 3.8).
- 113. Cotter pins not as specified (see 3.9).
- 114. Combination clamp and thimble not as specified (see 3.10).
- 115. Ends of wire rope not seized (see 3.10).
- 116. Wire rope not as specified (see 3.11).
- 117. Bolts, hinge pins, and nuts not as specified (see 3.12).
- 118. Sling bridle not as specified (see 3.13).
- 119. Welding electrodes not as specified (see.3.14).
- 120. Workmanship not as specified (see 3.17).
- 121. Steel fabrication not as specified (see 3.17.1).
- 122. Welders and welding operators not certified as specified (see 3.17.2.1).
- 123. Weld defects such as flux inclusions, spatter, undercutting, porosity, incorrect size, or lack of fusion with parent metal (see 3.17.2.2).
- 124. Interchangeability not as specified (see 3.17.3).
- 125. Castings containing such defects as blow holes, porosity, shrinkage defects, cracks, thin sections, or casting not smooth or well cleaned (see 3.17.4).

Minor

- 201. Identification marking incorrect, missing, or illegible (see 3.15).
- 202. Cleaning, treatment, and painting not as specified (see 3.16).

4.6 Inspection of packaging.

### 4.6.1 Quality conformance inspection of pack.

4.6.1.1 <u>Unit of product</u>. For the purpose of inspection, a completed pack prepared for shipment shall be considered a unit of product.

4.6.1.2 <u>Sampling</u>. Sampling for examination shall be in accordance with MIL-STD-105. Sample size shall be determined by using tables I and IIa. A lot shall be accepted when zero defects are found and rejected when one or more defects are found.

4.6.1.3 <u>Examination</u>. Samples selected in accordance with 4.6.1.2 shall be examined for the following defects. Presence of one or more defects shall be cause for rejection.

- 126. Sheave brackets not removed and pins not reinstalled as specified for level A (see 5.1.1.1).
- 127. Unprotected surfaces not coated with preservative as specified for level A (see 5.1.1.2).
- 128. Boxes not as specified for level A or B (see 5.2.1 and 5.2.2).

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- 129. Contents not secured within box for level A or B (see 5.2.1 and 5.2.2).
- 130. Strapping not as specified for level A or B (see 5.2.1 and 5.2.2).
- 131. Preservation and packing not in accordance with the referenced
  - document as specified for commercial (see 5.1.2 and 5.2.3).
- 132. Marking missing, illegible, incorrect, or incomplete (see 5.3).

5. PACKAGING

5.1 <u>Preservation</u>. Preservation shall be level A or commercial as specified (see 6.2).

5.1.1 <u>Level A</u>.

5.1.1.1 <u>Disassembly</u>. The sheave brackets shall be removed and the pins shall be reinserted in the mating parts of the hinge to prevent loss.

5.1.1.2 <u>Unprotected surfaces</u>. Unpainted metal surfaces of components requiring the application of a contact preservative in accordance with MIL-P-116 shall be coated with type P-1 preservative. The preservative shall conform to the applicable specification listed in and shall be applied in accordance with MIL-P-116.

5.1.2 <u>Commercial</u>. The bicycle traveler shall be disassembled as specified in 5.1.1.1 and shall be preserved in accordance with ASTM D 3951.

5.2 <u>Packing</u>. Packing shall be level A, B, or commercial as specified (see 6.2).

5.2.1 Level A. Each complete bicycle traveler shall be packed in a closefitting box conforming to PPP-B-601, overseas type, grade B, style optional or PPP-B-621, class 2, style optional. The contents shall be secured within the box in a manner to prevent free movement. Box closure shall be in accordance with the appendix to the applicable box specification. Strapping shall be in accordance with ASTM D 3953, type 1 or 2, zinc-coated, size as applicable and ASTM D 4675.

5.2.2 Level B. Each complete bicycle traveler shall be packed as specified in 5.2.1, except boxes shall be domestic type and strapping shall be zinccoated. As an alternate, the complete bicycle traveler may be packed in a close-fitting box conforming to PPP-B-640, class 2, style optional. The contents shall be secured within the box in a manner to prevent free movement. Box closure shall be in accordance with the appendix to the box specification.

5.2.3 <u>Commercial</u>. Each complete bicycle traveler shall be packed in accordance with ASTM 3951.

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#### MIL-T-12173D

5.3 Marking.

5.3.1 <u>Military</u>. In addition to any special marking specified in the contract or purchase order, marking shall be in accordance with MIL-STD-129.

5.3.2 Commercial. Marking shall be in accordance with ASTM D 3951.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 <u>Intended use</u>. The bicycle traveler is intended for use as a component of a trail ferry in military stream-crossing operations.

6.2 <u>Acquisition requirements</u>. Acquisition documents should specify the following:

- a. Title, number, and date of the specification.
- b. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).
- c. When a first article is required for inspection and approval, and the number of units required (see 3.2).
- d. Degree of preservation and degree of packing required (see 5.1 and 5.2).

6.3 <u>First article</u>. When a first article inspection is required, the item(s) should be preproduction models. The first article should consist of one or more units. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, approval of the first article test results, and disposition of the first articles. Invitation for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

6.4 <u>Consideration of data requirements</u>. The following data requirements should be considered when this specification is applied on a contract. The applicable Data Item Description (DIDs) should be reviewed in conjunction with the specific acquisition to ensure that only essential data are requested/ provided and that the DIDs are tailored to reflect the requirements of the specific acquisition. To ensure correct contractual application of the data requirements, a Contract Data Requirements List (DD Form 1423) must be prepared to obtain the data, except where DoD Far Supplement 27.475-1 exempts the requirement for a DD Form 1423.

<u>Reference paragraph</u>	DID Number	DID Title
3.17.2.1	DI MISC-80876	Welding Procedure Qualification Test Report
3.17.2.1	DI-MISC-80875	Welding Procedures

6.5 <u>Changes from previous issue</u>. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

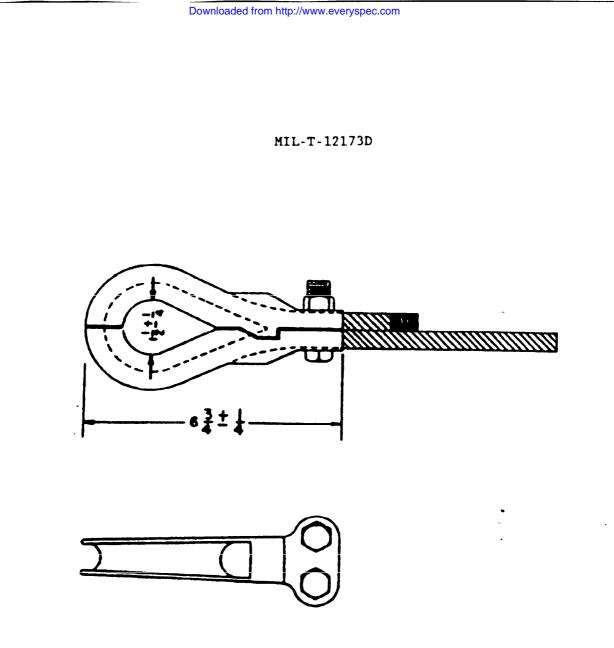
6.6 <u>Subject term (key word) listing.</u>

Trail ferry Traveler bicycle

Custodian: Army - ME

Review activity: DLA - CS Preparing activity: Army - ME

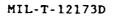
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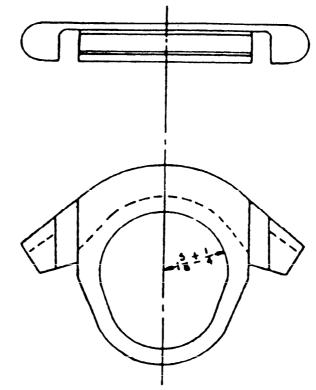


NOTE: ALL DIMENSIONS ARE IN INCHES.

# FIGURE I. Clamp and thimble

X-4122







# FIGURE 2 Sling bridle.

## X-4123

	STANDARDIZATION DOCUMEN	NT IMPROVEMENT PROPOSAL	****
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