

**MIL-W-45475C(MU)****22 JULY 1963****SUPERSEDING****MIL-W-45475B (Ord)****12 JUNE 1962****MILITARY SPECIFICATION****WARHEAD, GUIDED MISSILE, HE, XM5E5  
LOADING, ASSEMBLING AND PACKING****1. SCOPE**

1.1 This specification covers the quality assurance provisions, and special requirements not covered by the drawings, pertaining to the loading, assembling and packing of high explosive warheads designated as Warhead, Guided Missile, HE, XM5E5.

*of Equipment, Operators and Procedures.*

MIL-C-13573 —Calcium Chloride  
MIL-C-18164 —Composition D-2  
MIL-I-45208 —Inspection Requirements, General Specification for

**2. APPLICABLE DOCUMENTS**

2.1 The following documents of the issue in effect on date of invitation for bids, or request for proposal, form a part of this specification to the extent specified herein.

MIL-I-45607 —Inspection Equipment, Supply and Maintenance of  
MIL-C-51077 —Calcium Silicate, Technical

**SPECIFICATIONS****FEDERAL**

MIL-C-401 —Composition B  
MIL-A-512 —Aluminum Powder, Flaked, Grained and Atomized (for use in Ammunition)  
MIL-A-2550 —Ammunition and Special Weapons, General Specification for  
MIL-R-11470 —Radiographic Inspection, Qualification

**STANDARDS****MILITARY**

MIL-STD-105 —Sampling Procedures and Tables for Inspection by Attributes  
MIL-STD-109 —Inspection Terms and Definitions  
MIL-STD-1235 —Simple and Multilevel Continuous Sampling Procedures and Tables for Inspection by Attributes.

**FSC 1336**

MIL-W-45475C(MU)

## DRAWINGS

## ORDNANCE CORPS

8830879 —Crate, Packing, Ammunition, Dual, for Warhead, Guided Missile, HE, XM5E5, XM9E3 or Warhead, Guided Missile, Inert, XM10E3

8861583 —Warhead, Guided Missile, HE, XM5E5, Loading Assembly

8861584 —Warhead, XM5E5, Inert Parts Assembly

ing (dwg.) 8861583 and with all requirements specified in applicable specifications.

**3.3 Composition of explosive charge.** The composition of the explosive charge shall be as follows:

<i>Ingredients</i>	<i>Percentage by weight</i>
Composition B (MIL-C-401, Grade A)	73.9 plus or minus 6
Aluminum (MIL-A-512, Type III, Grade F, Class 7)	20.9 plus or minus 3
D-2 Desensitizer (MIL-C-18164)	4.7 plus or minus 1
Calcium Chloride (MIL-C-13573)	0.5 plus or minus 0.1
Calcium Silicate (MIL-C-51077) added	see below

The quantity, by weight, of calcium silicate shall not be less than 1.25 percent of the actual quantity of TNT in the Composition B in the explosive charge mixture.

**3.4 Radiographic examination.** For the determination of the presence of defects in the explosive charge, the charge will be divided into segments as defined by Figure 1.

**3.4.1 Cracks.** Cracks in the explosive charge are permissible provided a charge separation does not exist. A charge separation is defined as the formation of a multi-segment charge caused by a crack, or cracks, extending entirely through the charge in any direction.

**3.4.2 Cavities.** Cavities within the explosive charge shall not exceed the areas or dimensions specified in Table I. Porous areas shall be treated as cavities except that 80 percent of the projected length and 80 percent of the projected area shall be considered for acceptance purposes.

TABLE I

	Segment A	Segment B	Segment C	Segment D	Segment E
Sum of projected areas of all cavities (square inch).	$\frac{1}{2}$	$1\frac{1}{2}$	3	1	2
Maximum projected length of any cavity (inch).	1	2	$2\frac{1}{2}$	$1\frac{1}{2}$	2

## PUBLICATIONS

## ORDNANCE CORPS

IEL-8861584 —Index of Inspection Equipment Lists

(Copies of specifications, standards, drawings and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

## 3. REQUIREMENTS

**3.1 Material.** Materials and parts shall be in accordance with applicable drawings and specifications.

**3.2 Assemblies.** The assemblies shall comply with all requirements specified on Draw-

**3.4.3 Missing explosive components.** No component shall be missing from the charge initiating explosive train.

**3.4.4 Qualification.** Radiographic equipment, operators and procedures shall be qualified in accordance with Specification MIL-R-11470 prior to use in production.

**3.5 Workmanship.** Loading and assembling shall be accomplished in a thorough, workmanlike manner. All parts shall be free of molding defects (porosity, checks, cracks, chipped edges and scratches) dirt, grease, explosive on any exterior surface, corrosion products and other foreign matter. The cleaning method used shall not be injurious to any part nor shall the parts be contaminated by the cleaning agent. Surface coatings shall be continuous except for a few slight scratches not exposing base material. All required marking shall be neat and sharply defined.

#### 4. QUALITY ASSURANCE PROVISIONS

**4.1 General quality assurance provisions.** The supplier is responsible for the performance of all inspection requirements specified herein. Except as otherwise specified, the supplier may utilize his own or any other inspection facilities and services acceptable to the Government. Inspection records of the examinations and tests shall be kept complete and available to the Government as specified in the contract or order. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements. Reference shall be made to Standard MIL-STD-109 in order to define terms used herein. The provisions of Specification MIL-A-2550 shall apply.

**4.1.1 Contractor quality assurance system.** The contractor shall provide and maintain an effective quality assurance system in compliance with the requirements of Specification MIL-I-45208.

**4.1.2 Submission of product.** At the time the completed lot of product is submitted to the Government for acceptance the contractor shall supply the following information accompanied by a certificate which attests that the information provided is correct and applicable to the product being submitted:

- (a) A statement that the lot complies with all quality assurance provisions of the approved current written description of the system.
- (b) Number of units of product inspected.
- (c) Results obtained for all inspection performed.
- (d) Drawing, specification number and date, together with an identification and date of changes.
- (e) Certificates of analysis on all material purchased by the contractor when such material is controlled by Government specifications referenced in any of the contractual documents.
- (f) Number of items in the lot.
- (g) Date submitted.

The certificate shall be signed by a responsible agent of the certifying organization. The initial certificate submitted shall be substantiated by evidence of the agent's authority to bind his principal. Substantiation of the agent's authority will not be required with subsequent certificates unless, during the course of the contract, this authority is vested in another agent of the certifying organization.

**4.1.3 Government verification.** Using the contractor's written quality assurance procedure, this detail specification, the applicable drawings and other contractual documents as a guide, the Government inspector shall verify at unscheduled intervals all quality assurance operations performed by the contractor. Verification will be in accord-

**MIL-W-45475C(MU)**

ance with Specification MIL-I-45208 and will be performed to the extent necessary to assure compliance with the contractual requirements. Severity of Government inspection of individual characteristics will be directly related to the seriousness of the classification assigned. In no instance will a characteristic classified "critical" be accepted solely on the basis of the contractor's records.

**4.2 Inspection provisions.**

**4.2.1 Lot formation.** A lot shall consist of loaded warhead assemblies produced by one manufacturer in one unchanged process, in accordance with the same drawing, same drawing revision, same specification, and same specification revision. Drawing, specification, and process changes not affecting safety, performance or fit, as determined by the Government shall not necessitate changing the lot interfix number. Each lot shall contain:

(a) Each batch of explosive charge mixture shall contain ingredients from not more than 2 lots, from one manufacturer, of any ingredient.

(b) RDX pellets from not more than one batch or homogeneous blend of batches.

(c) Inert parts from lots of the same lot interfix number from one manufacturer.

**4.2.2 Examination.** Sampling plans and procedures for the following classifications of defects shall be in accordance with Standard MIL-STD-105 except that inspection for critical defects, when listed, shall be 100 percent. Continuous sampling plans in accord with Standard MIL-STD-1235 may be used if approved by the procuring activity. Also, at the option of the procuring activity, AQL's and sampling plans may be applied to the individual characteristics listed using an AQL of 0.25 percent for each major defect and an AQL of 0.40 percent for each minor defect. Equipment necessary for the

performance of the inspections listed shall be in accordance with 4.2.4.

**4.2.2.1 Cup, booster** (see dwg. 8800276 covering a detail of dwg. 8800264).

Categories	Defects	Method of inspection	Code No. (see 6.3)
Critical:	None defined.		
Major:	None defined.		
Minor:	AQL 1.50 percent		
201.	Outside diameter	Gage	01001
202.	Inside diameter	Gage	01002
203.	Depth of cavity, min.	Gage	01003
204.	Evidence of poor workmanship (see 3.5)	Visual	01004

**4.2.2.2 Cover, booster** (see dwg. 8800277 covering a detail of dwg. 8800264).

Categories	Defects	Method of inspection	Code No.
Critical:	None defined.		
Major:	None defined.		
Minor:	AQL 1.00 percent		
201.	Diameter of cavity	Gage	02001
202.	Evidence of poor workmanship (see 3.5)	Visual	02002

**4.2.2.3 Tube** (see dwg. 8800280 covering a detail of dwg. 8800283).

Categories	Defects	Method of inspection	Code No.
Critical:	None defined.		
Major:	AQL 0.25 percent		
101.	Wall thickness	Gage	03001
102.	Outside diameter, max.	Gage	03002
Minor:	AQL 1.50 percent		
201.	Total Length	Gage	03003
202.	Coating damaged or inadequate	Visual	03004
203.	Evidence of poor workmanship (see 3.5)	Visual	03005

**4.2.2.4 Cup** (see dwg. 8861589 covering a detail of dwg. 8861591).

Categories	Defects	Method of inspection	Code No.
Critical:	None defined.		
Major:	AQL 0.40 percent		
101.	Thickness through bottom	Gage	04001
102.	Outside diameter, max.	Gage	04002

MIL-W-45475C(MU)

Categories	Defects	Method of inspection	Code No.
	103. Inside diameter, min.	Gage	04003
	104. Length, max.	Gage	04004

Minor: AQL 0.40 percent

201. Evidence of poor workmanship (see 3.5) Visual 04005

4.2.2.5 Pellet, booster (see dwg. 8800281 covering a detail of dwg. 8800264).

Categories	Defects	Method of inspection	Code No.
Major:	AQL 0.40 percent		

101.	Weight	Balance	05001
102.	Diameter	Gage	05002
103.	Thickness	Gage	05003
104.	Crack or lamination	Visual	05004

Minor: None defined.

4.2.2.6 Pellet (see dwg. 8800282 covering a detail of dwg. 8861591).

Categories	Defects	Method of inspection	Code No.
------------	---------	----------------------	----------

Critical: None defined.

Major: AQL 0.40 percent

101.	Weight	Balance	06001
102.	Diameter	Gage	06002
103.	Thickness	Gage	06003
104.	Crack or lamination	Visual	06004

Minor: None defined.

4.2.2.7 Pellet cup assembly (see dwg. 8861591 covering a detail of dwg. 8861583).

Categories	Defects	Method of inspection	Code No.
------------	---------	----------------------	----------

Critical: None defined.

Major: AQL 0.25 percent

101.	Spacer above flush	Visual	
		Manual	07001
102.	Spacer missing	Visual	07002

Minor: None defined.

4.2.2.8 Tube assembly (see dwg. 8800283 covering a detail of dwg. 8861583).

Categories	Defects	Method of inspection	Code No.
------------	---------	----------------------	----------

Critical: None defined.

Major: AQL 0.25 percent

101.	Varnish missing from end	Visual	08001
------	--------------------------	--------	-------

Minor: None defined.

4.2.2.9 Parts assembly (see dwg. 8861584 covering a detail of dwg. 8861583).

Categories	Defects	Method of inspection	Code No.
------------	---------	----------------------	----------

Critical: None defined.

Major: AQL 0.40 percent

101.	Foreign matter on interior surface	Visual	09001
102.	Bare spot or scratch in interior surface coating	Visual	09002
103.	Shell or S & A liner cracked or otherwise damaged	Visual	09003
104.	Insert pin missing	Visual	09004

Minor: None defined.

4.2.2.10 Loading assembly, prior to pouring charge (see dwg. 8861583).

Categories	Defects	Method of inspection	Code No.
------------	---------	----------------------	----------

Critical: None defined.

Major: AQL 0.65 percent

101.	Tube above flush or excessively below flush	Gage	10001
102.	Booster cup assembly cracked or split	Visual	10002
103.	Area around bonded surfaces not coated	Visual	10003
104.	Booster cup assembly loose or not properly assembled	Visual	
		Manual	10004

105. Pellet cavity not plugged securely Visual Manual 10005

Minor: AQL 0.40 percent

201. Evidence of poor workmanship (see 3.5) Visual 10006

4.2.2.11 Loading assembly, prior to closing (see dwg. 8861583).

Categories	Defects	Method of inspection	Code No.
------------	---------	----------------------	----------

Critical: None defined.

Major: AQL 0.25 percent

101.	Pad missing	Visual	11001
102.	Charge not filled in and leveled	Visual	11002

Minor: None defined.

4.2.2.12 Loading assembly (see dwg. 8861583).

**MIL-W-45475C(MU)**

<i>Categories</i>	<i>Defects</i>	<i>Method of inspection</i>	<i>Code No.</i>
<b>Critical:</b>	None defined.		
<b>Major:</b>	AQL 0.40 percent		
101.	Pellet cup above flush in S & A cavity.....	Gage	12001
102.	Evidence of separation or peeling of overlaps of outer body .....	Visual	12002
103.	Paint where not permitted .....	Visual	12003
104.	Closing plug bond inadequate .....	Manual	12004
<b>Minor:</b>	AQL 1.50 percent		
201.	Marking missing, misleading or unidentifiable.....	Visual	12005
202.	Exterior coating damaged (see 3.5) .....	Visual	12006
203.	Evidence of poor workmanship (see 3.5) .....	Visual	12007

**4.2.2.13** Crate, prior to sealing (see dwg. 8830879).

<i>Categories</i>	<i>Defects</i>	<i>Method of inspection</i>	<i>Code No.</i>
<b>Critical:</b>	None defined.		
<b>Major:</b>	AQL 0.25 percent		
101.	Warhead loose or improperly assembled .....	Visual- Manual	13001
<b>Minor:</b>	AQL 0.40 percent		
201.	Foreign matter in interior .....	Visual	13002

**4.2.2.14** Crate, sealed (see dwg. 8830879).

<i>Categories</i>	<i>Defects</i>	<i>Method of inspection</i>	<i>Code No.</i>
<b>Critical:</b>	None defined.		
<b>Major:</b>	AQL 0.65 percent		
101.	Board broken or split.....	Visual	14001
102.	Skid missing or damaged.....	Visual	14002
103.	Contents exposed .....	Visual	14003
104.	Lag screw or nut missing or loose .....	Visual- Manual	14004
105.	Strapping missing, broken or loose .....	Visual- Manual	14005
<b>Minor:</b>	AQL 1.00 percent		
201.	Marking missing, misleading or unidentifiable.....	Visual	14006
202.	Strapping improperly assembled .....	Visual	14007

**4.2.3 Testing.**

**4.2.3.1** *Composition of explosive charge* (see 3.3). Major defect—Code No. 15001. Five sample wafers of approximately 100 grams (gm.) each shall be taken from the charge at the loading spout at regularly spaced intervals. One each of the wafers shall be taken near the beginning and near the end of each batch. One quarter of each wafer shall be ground, thoroughly blended and a portion selected for analysis. Failure of the portion in meeting one or more of the composition requirements shall reject that portion of the batch represented by the portion. The analyses shall be performed as detailed in 4.3.1.

**4.2.3.2** *Radiographic examination* (see 3.4). Major defect—Code No. 16001. This determination shall utilize the equipment, operators, and procedures qualified under 3.4.4 as specified in 4.3.2 and shall be performed 100 percent. Any assembly failing to meet one or more of the requirements shall be classed defective and removed from the lot.

**4.2.3.3** *Assembly weight* (see dwg. 8861583). Major defect—Code No. 12008. This determination shall be performed 100 percent. Any assembly failing to meet the requirement shall be classed defective and removed from the lot.

**4.2.4** *Inspection Equipment.* Index of Inspection Equipment Number IEL-8861584 identifies the inspection equipment required to perform the examinations and tests prescribed in this section. The contractor shall design inspection equipment in accordance with the instructions in paragraph 6.3.

**4.2.4.1** *Government rights to documentation.* Inspection equipment drawings and lists provided and revised in accordance with the requirements of the IEL may be used by DOD activities for design, procurement, manufacture, testing, evaluation, production



and receiving inspection, overhaul, shipping, storage, identification of stock, ordering and storage of replacement parts, inspection of items at overhaul, general maintenance of equipment, construction, survey and whenever inspection equipment drawings are needed.

**4.2.4.2 Supply and maintenance.** Supply and maintenance of the equipment listed on the IEL shall be in accordance with Specification MIL-I-45607.

**4.2.4.3 Government use of contractor's inspection and test equipment.** The contractor shall make available all inspection and test equipment necessary for determining conformance with contract requirements. Operation of the equipment and verification of its accuracy shall be supplied by the contractor for the performance of examination or test by the Government.

#### 4.3 Test methods and procedures.

**4.3.1 Composition of explosive charge** (see 6.4).

**4.3.1.1 Explosive content determination.** An accurately weighed 1.00 gram portion of the sample (see 4.2.3.1) shall be transferred to a tared medium porosity sintered glass crucible. The sample shall be extracted 8 times with 20 milliliter (ml.) portions of cold acetone (approximately 5 degrees Centigrade (C.)). After completion of the extraction, the crucible and residue shall be dried in an oven maintained at approximately 60 degrees C. for 5 minutes, cooled in a desiccator and weighed. (Reserve the crucible and content for the D-2 determination). The percent explosive shall be calculated as follows:

$$\text{*percent explosive} = 100(W2 - W3) \text{ divided by } WS$$

\* This percentage includes the nitrocellulose from the D-2' desensitizer.

where:

W2 = weight of crucible and sample.

W3 = weight of crucible and residue after drying.

WS = original weight of sample.

**4.3.1.2 D-2 desensitizer content determination.** The residue in the crucible reserved from the explosive content determination shall be extracted with four 10 ml. portions of benzene and then rinsed with two 10 ml. portions of chloroform. The crucible and contents shall then be dried in an oven at approximately 65 degrees C. for a half hour, cooled in a desiccator and weighed. (Reserve the crucible and residue for the calcium silicate determination.) The percent D-2 shall be calculated as follows:

$$\text{percent D-2} = 116 (W3 - W4) \text{ divided by } WS$$

where:

W3 = weight of crucible and residue from the explosive determination.

W4 = weight of crucible and residue after drying.

WS = original weight of the sample.

116 = factor for nitrocellulose removed in explosive determination.

**4.3.1.3 Calcium silicate and calcium chloride content.** The Government inspector shall verify that the correct weights of calcium silicate and calcium chloride are added to each batch.

**4.3.1.4 Aluminum content determination.** The aluminum content shall be calculated as the difference between the sum of the analytic results of 4.3.1.1 and 4.3.1.2 and the nominal values of 4.3.1.3 and 100.

**4.3.2 Radiographic examination.** The warhead shall be radiographically examined by directing the beam perpendicular to the plane of the warhead depicted in figure 1 and after a 90 degree rotation on its longitudinal axis. Examination of the negatives shall be made

**MIL-W-45475C(MU)**

for the absence of an explosive train component, for charge defects in excess of those permitted by 3.4.2 and for a crack, or cracks, causing a charge separation. Any unit exhibiting one or more of the defects shall be classed defective.

**5. PREPARATION FOR DELIVERY****5.1 Packing and marking.**

**5.1.1 Level A.** The loaded warhead shall be packed and marked in accordance with dwg. 8830879.

**5.2 Data cards.** Data card information shall be prepared for each lot in accordance with the procedures specified in Specification MIL-A-2550.

**6. NOTES**

**6.1 Ordering data.** Procurement documents shall specify the following:

(a) Title, number and date of this specification.

**6.2 Inspection code numbers.** The five digit code numbers assigned to the inspections herein are to facilitate future data collection and analysis by the Government.

**6.3 Inspection equipment.** The contractor shall design inspection equipment as required by the referenced Inspection Equipment Lists (IEL) in accordance with the Instructions of 6.3.1 through 6.3.7.

**6.3.1 Inspection Equipment Lists.** Inspection Equipment Lists indicate the availability of inspection equipment designs by showing in the "number" column of the list of inspection equipment (OO Form 1242-3) the numbers of drawings of existing equipment designs or codes as indicated in 6.3.2. Design action required of the contractor with respect to the different types of drawings that may be listed is described in 6.3.3 and 6.3.4. Action

required by the contractor with respect to commercial inspection equipment is described in 6.3.5. The contractor will be required to prepare detailed drawings in accordance with 6.3.6 for all the equipment coded as "contractor design" in the number column. These contractor designs must be approved by the Government prior to fabrication or procuring of the equipment. Designs shall be submitted for approval as specified in 6.3.7.

**6.3.2 Inspection Equipment List codes.** The inspection equipment as defined in 6.3.3, 6.3.4, 6.3.5, and 6.3.6 will be designated in the Inspection Equipment List by the following codes:

CDOF —Contractor's design responsibility on Ordnance format;  
ORDM-608-12.

CDCF —Contractor's design responsibility on contractor format.

OD —Ordnance design.

ODMU —Ordnance design, mandatory for use.

CE —Commercial equipment.

SCD —Specification Control Drawing.

**6.3.3 Ordnance designs.** Ordnance designs are reflected on detailed drawings which completely depict all the information necessary for the fabrication of the item of inspection equipment. The contractor need provide no design when an Ordnance design is listed for an item of inspection equipment. Ordnance designs fall into two basic classifications; mandatory and nonmandatory. When an Inspection Equipment List references mandatory Ordnance designs, the contractor shall comply with, and use these designs accordingly. The contractor may, however, in connection with nonmandatory designs and with the approval of the Government, design alternate inspection equipment or use comparable commercial equipment to facilitate his operations. Such contractor prepared designs or commercial equipment selections must be



approved by the Government prior to fabrication or procuring of the equipment. Designs shall be submitted for approval as specified in 6.3.7.

**6.3.4 Specification control drawings.** Specification control drawings depict the minimum equipment requirements in outline, descriptive, diagrammatic, or pictorial form only and specify the required performance or other characteristics. Contractors must prepare detailed drawings (see 6.3.6) of their designs in support of specification control drawings. These contractor prepared designs must be approved by the Government prior to the fabrication or procuring of the equipment. Commercial equipment meeting the requirements of specification control drawings may be approved if described in sufficient detail to permit identification and evaluation by the Government. Designs shall be submitted for approval as specified in 6.3.7.

**6.3.5 Commercial equipment.** Commercial equipment is inspection equipment that has universal application for a specific function. It is comprised of items commonly used by industry and government. Contractors are not required to furnish drawings of commercial inspection equipment but a list of such equipment must be approved by the Government. Lists shall be submitted for approval to the inspection element of the agency administering the contract.

**6.3.6 Contractor designs.** Contractor designs are designs of inspection equipment for which the Government has assigned design responsibility to the contractor. Contractor designs shall be supported by detailed drawings which depict all information necessary to completely fabricate, calibrate and operate an item of inspection equipment. This requires that the necessary views, dimensions, materials, finish, notes, operating and calibration instructions be properly depicted in accordance with approved practices to the extent that further calculation and clarification

will not be required. Contractor designs identified as CDCE may be developed on the format the contractor normally employs in his equipment design procedure provided such format reflects the detail and information specified above. Contractor designs identified as CDOF shall comply with the format and requirements of ORDM-608-12, and, in addition, contain the detail and information specified above.

**6.3.7 Submission of contractor designs.** Designs shall be submitted for approval to the Commanding Officer, Picatinny Arsenal, ATTN: SMUPA-ND. Design review will normally be accomplished within one month after receipt by Picatinny Arsenal. Partial submission of inspection equipment designs is permissible and encouraged. However, the Arsenal completion date for design review will be based on the date of the final submission of designs.

**6.4 Composition of explosive charge.** The contractor may use, with prior approval of the responsible Government technical agency, other methods and procedures than those detailed in 4.3.1 for determining the analysis of the explosive charge.

**6.5 Inspection log.** The Government inspector will maintain a log in which will be recorded the dates and times of his surveillance operations, the characteristics, tests or processes surveyed, deficiencies and improvements noted and the action taken by him, or the contractor, as a result of his surveillance.

**6.6 Reusable shipping containers.** The contractor should, when possible, utilize for shipment of the loaded units the containers in which the unloaded warheads are received.

**Notice.** When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government

# **MIL-W-45475C(MU)**

may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any

other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

**Custodian:**

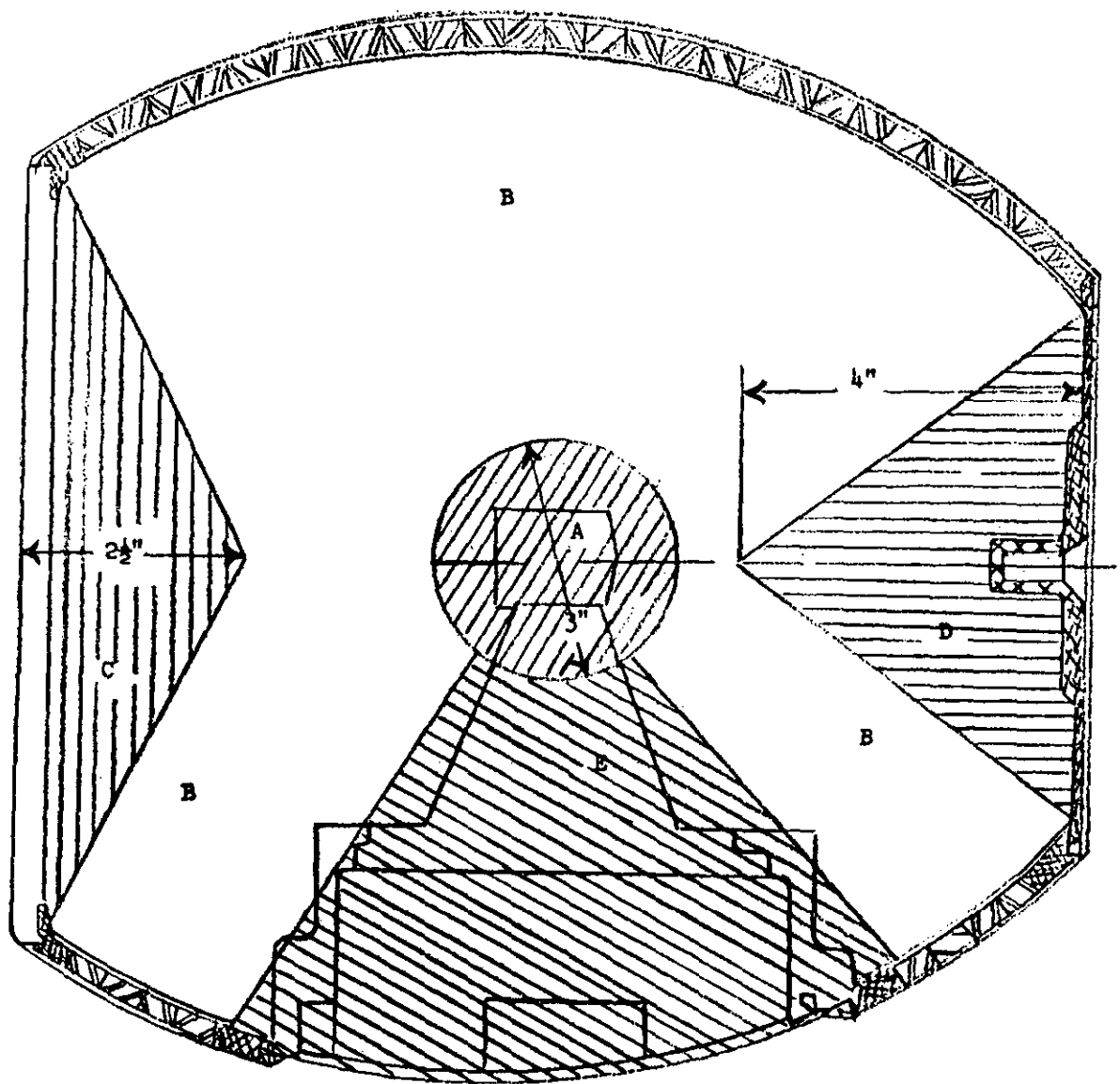
**Army—(MU)**

**Preparing activity:**

**Army—(MU)**

**Project No. 1336-A099**

MIL-W-45475C(MU)



XM5E5 CAVITATION ZONES

0° POSITION

Figure 1.