

INCH-POUND

MIL-DTL-4710E
26 January 2006
Superseding
MIL-C-4710D
29 June 1988

DETAIL SPECIFICATION

CASE SET, TRANSPORT AND STORAGE

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

1. SCOPE

1.1 Scope. This specification covers case sets (consisting of two cases) for shipment and storage of miscellaneous small parts.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in section 3, 4, or 5 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information 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 of documents cited in sections 3, 4, or 5 of this specification, whether or not they are listed.

2.2 Government Documents.

2.2.1 Specifications, standards and handbooks. The following specifications, standards and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

FEDERAL SPECIFICATIONS

QQ-S-698 Steel, Sheet and Strip, Low Carbon
TT-C-490 Chemical Conversion Coatings and Pretreatments for Ferrous
Surfaces (Base for Organic Coatings)
TT-W-572 Wood Preservative: Water-Repellent

(Copies of these documents are available online at <http://assist.daps.dla.mil/quicksearch/> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

Comments, suggestions, or questions on this document should be addressed to Defense Supply Center Philadelphia (DSCP), ATTN: DSCP-ITAA, 700 Robbins Avenue., Philadelphia, PA 19111-5096 or e-mail to dscpg&inspeccomments@dlamail. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <http://assist.daps.dla.mil>.

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FEDERAL STANDARD

FED-STD-595 Colors used in Government Procurement

COMMERCIAL ITEM DESCRIPTIONS

A-A-55057 Panels, Wood/Wood Based; Construction and Decorative

DEPARTMENT OF DEFENSE SPECIFICATION

MIL-E-52891 Enamel, Lusterless, Zinc Phosphate, Styrenated Alkyd Type

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-129 Military marking for Shipment and Storage
MIL-STD-130 Identification Marking of U. S. Military Property
MIL-STD-810 Environmental Engineering Considerations and Laboratory Tests
MIL-STD-2073-1 Standard Practice for Military Packaging

(Copies of these documents are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094 or online at <http://assist.daps.dla.mil>.)

2.2.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

DRAWINGS

Air Force

44B9598 Code Ident No. 98750 Handle Assembly — Shipping Case

(Copies of Publications, drawings and other government documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.3 Non-Government publications. The following document forms a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D4549 Standard Specification for Polystyrene and Rubber – Modified
Polystyrene Molding and Extrusion Materials.
ASTM D4802 Standard Specification for Poly (Methyl Methacrylate) Acrylic
Plastic Sheet

(Copies of these document are available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 or www.astm.org.)

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AMERICAN SOCIETY FOR QUALITY CONTROL (ASQC)

ASQC Z1.4 – Sampling Procedures and Tables for Inspection by Attributes

(Copies of this document are available from the American Society for Quality Control, 611 East Wisconsin Avenue, Milwaukee, WI 53202.)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in these documents, however, supersedes applicable laws and regulations unless a specified exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified in the contract or purchase order, a sample shall be subjected to first article inspection (see 4.2 and 6.2).

3.2 Selection of specifications and standards. Specifications and standards for necessary commodities and services not specified herein shall be selected as provided in 3.2.1 and 3.2.2.

3.2.1 Standard parts. Standard parts shall be used whenever possible, and shall be identified on the drawings or parts list by their part number.

3.2.2 Commercial parts. Commercial utilities parts, such as screws, bolts, washers, nuts, cotter pins, etc., having suitable properties may be used provided:

- a. There are no suitable standard parts; or
- b. They can be replaced by the standard parts without alteration, and the corresponding standard part numbers are referenced in the parts list and, if practical, on the contractor's drawings.

3.3 Materials. Materials used in manufacturing this case set shall conform to the requirements specified and specifications referenced herein. Materials which are not covered by specifications or which are not specifically described herein shall be of the best quality, of the lightest practicable weight, and suitable to enable the case set to meet the performance requirements specified.

3.3.1 Plywood. Unless otherwise specified, each case set shall be constructed from an exterior type of plywood conforming to A-A-55057, Type A. Thickness of plywood shall be .250 inch.

3.3.2 Ferrous metals. Ferrous metals used for the case set shall conform to QQ-S-698.

3.3.3 Plastic. Plastics used for construction of the drawers shall be transparent and conform to ASTM D4549 or ASTM D4802.

3.3.4 Fungus, rodent, insect proof materials. Plywood shall be treated with composition C or D of TT-W-572. The plywood shall be completely immersed in the preservation solution maintained at 70 degrees F to 90 degrees F for a minimum of ten minutes. After withdrawal, the plywood shall be allowed to drain thoroughly before use. Any cut edges shall be brush-treated with the solution before assembly of the case.

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3.3.5 Gasket. A gasket of neoprene or other equivalent materials shall be provided on one case body half assembly of each case. The gasket shall be flexible at -20 degrees F and shall not disintegrate or separate from the case at -40 degrees F (see figure 3).

3.3.6 Protective treatment of materials. When materials used in the construction of the case set are subject to deterioration when exposed to natural environmental conditions they shall be protected against such deterioration in a manner that will in no way prevent compliance with the requirements of this specification. The use of protective coatings that are not resistant to extreme changes in natural environmental conditions shall be avoided.

3.4 Design. The case set design, configuration, size, and dimensions shall conform to figures 1 through 7.

3.4.1 Case set. The case set shall consist of two cases. (Case No. 1, see figure 5 and Case No. 2, see figure 6.)

3.4.1.1 Case No. 1. Case No. 1 shall consist of a left half and a right half, two handles, three hinges, and two closure bolts. Each half of Case No. 1 shall contain a total of 32 "B" size drawers. (See figures 5 and 7.)

3.4.1.2 Case No. 2. Case No. 2 shall consist of a left half and a right half, two handles, three hinges, and two closure bolts. Each half of Case No. 2 shall contain 4 "A" size drawers and 8 "C" size drawers. (See figures 6 and 7.)

3.4.2 Handles. The handles shall conform to U. S. Air Force drawing 44B9598 and positioned on the case set in accordance with figure 1. The handles shall not fail nor pull loose from the case when subjected to the test specified in 4.4.3.

3.4.3 Hinges. The hinges shall conform to part number S-1254 hinge, new offset, No. 1 finish, manufactured by J. H. Sessions and Son, or equal. The three hinges shall be fastened to the case set and positioned in accordance with figure 1.

3.4.4 Interchangeability. All parts having the same manufacturer's part number shall be functionally and dimensionally interchangeable.

3.5 Construction. The case set shall be so constructed that no component part will work loose in services, and withstand the strains, impacts, and other rough handling conditions incident to shipment and storage of small parts weighing not more than 200 pounds per case.

3.5.1 Sealing. The sealant must establish contact with adjacent surfaces, must have a fillet with not less than 1/8" or more than 1/4" measuring across the diagonal. The sealant must be applied around each back plate of the handle inside the case and all internal corners of the case must be sealed along with the inside of the male tongue assembly.

3.6 Performance. Each container of the case set shall be capable of withstanding the test in 4.4 to the extend specified herein. Following each test, the case set shall be capable of being opened and closed with ease and shall show no signs of structural failure, loss of protective coatings, or separation or disintegration of gasket materials. Drawers shall not be cracked or deformed.

3.6.1 Temperature resistance. The case set and all drawers shall be fully and easily operable following the low and high temperature tests specified in 4.4.1.1.1 and 4.4.1.1.2 respectively.

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3.6.2 Humidity resistance. Only minor corrosion is permitted (see 6.3) and the gain in weight shall not exceed 5 percent of the initial weight of the case set, when subjected to the test specified in 4.4.1.1.3.

3.6.3 Corrosion resistance. Only minor corrosion is permitted (see 6.3) when exposed to atmosphere containing salt-laden moisture when subjected to the test specified in 4.4.1.1.4.

3.6.4 Durability. The case sets shall show no signs of structural failure when subjected to the drop test specified in 4.4.2.

3.7 Finishes and protective coatings.

3.7.1 Metal parts. Ferrous metal parts shall be covered with a phosphate coating conforming to TT-C-490, type I or II, prior to assembly. Closure bolts, if otherwise protected against corrosion, may be exempted from this requirement (see figure 4).

3.7.2 Painting and color. The paint shall conform to MIL-E-52891. Unless otherwise specified, the color of the case set shall be green, Color No. 34083, 34084, 34086 or 34088 per FED-STD-595 (see 6.2). One coat shall be applied inside and outside of the case set subsequent to assembly. Particular care shall be taken to assure complete coverage of handles, rivet heads, body binding, and similar areas.

3.8 Marking.

3.8.1 Identification. The case set shall be marked for identification on the outside of each case beneath the handles in accordance with MIL-STD-130. The following additional information shall be included in .750 inch letters:

Case Set, Transport and Storage
Case No. (1 or 2, as applicable)
Specification MIL-C-4710

3.8.2 Stenciling. The case set shall be stenciled as shown in figures 1 and 2.

3.9 Workmanship. The case set including all parts shall be well made and free from any defects which may affect durability, strength, or serviceability. All edges of nonmetallic materials resulting from machining, drilling, etc., shall be permanently sealed. All burrs and sharp edges shall be removed.

3.9.1 Dimensions. Dimensions and tolerances not specified shall be as close as and is consistent with the best shop and engineering practices. Where dimensions and tolerances may affect the interchangeability or performance of the case set, they shall be held or limited accordingly.

3.9.2 Riveting. All rivets, bolts, and screws shall be tight and free from cracks; heads shall be properly formed and concentric with the body of the rivets, bolts, and screws.

3.9.3 Welding. Welds shall be free of craters and exhibit characteristics of fusion, penetration, and soundness of weld deposit representative of good welding practice. All welding fluxes, scale, weld spatter, burrs, and sharp edges shall be completely removed prior to application of any finish coats.

3.9.4 Cleaning. Each case set shall be thoroughly cleaned of all foreign matter after final assembly.

4. VERIFICATION

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

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- a. First article inspection (see 4.2).
- b. Quality conformance inspection (see 4.3).

4.2 First article inspection.

4.2.1 First article sample. For testing (see 6.2). First article sample shall consist of one case set on which approval is desired.

4.2.2 First article test. First article test shall be conducted on the sample (see 4.2.1) and shall consist of all inspections and test specified herein except as specified in 4.3.3.2. The test results shall be approved by the procuring activity before production is started.

4.2.2.1 First article retest. First article tests shall be repeated in the event a change in the manufacturing process or a change in material is made.

4.3 Quality conformance inspection. Quality conformance inspection shall consist of all examinations specified herein and tests specified under 4.4.

4.3.1 Sampling for quality conformance inspection. Sampling for quality conformance shall be performed in accordance with the provisions set forth in ASQ Z1.4, except where otherwise indicated. For the purpose of sampling, inspection, and test, a lot shall consist of all case sets submitted for delivery at one time.

4.3.1.1 Inspection levels and acceptable quality level (AQLs) for examinations. The inspection levels for determining the sample size and the acceptable quality levels (AQLs), expressed in defects per 100 units shall be as specified in table below. Unless otherwise specified, the AQLs listed in this inspection shall be used to establish the sample size, however, the acceptance number shall be zero.

EXAMINATION PARAGRAPH	INSPECTION LEVEL	AOL	
		Major	Minor
4.3.3.1	II	2.5	10.0
4.3.3.2	S-4	4.0	

4.3.2 Process examination. Examination shall be made to determine compliance with fabricated features and surface treatment (see 3.7.1). When a deficiency is noted, correction shall be made. Failure to make immediate correction shall be cause for rejection of affected end case lots.

4.3.3 Examination of the end item. Examination of the end item shall be made in accordance with the inspection levels and acceptable quality levels (AQLs) specified in 4.3.1.1 and the classification of defects set forth in the following paragraphs.

4.3.3.1 Examination of the end item for defects in finish, construction, workmanship, markings, and dimensions. The sample unit(s) for this examination shall be a complete case set(s).

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EXAMINE	DEFECT	CLASSIFICATION	
		Major	Minor
Finish	Not color specified		X
	Rust on metal surfaces	X	
	Peeling or blistered	X	
Construction	Not smooth and uniform	X	
	Touch up not neat		X
	Not completely dry (tacky)		X
	Dirt, grit, or foreign matter imbedded in the enamel		X
	Color separation of discoloration affecting appearance		X
	Construction details not per figures 1 thru 7	X	
	Case set not consisting of cases 1 and 2	X	
	Not fabricated of material specified	X	
	Material not type or size specified	X	
	Not equipped with two handles	X	
	Not equipped with three hinges	X	
	Not equipped with two closure bolts	X	
	Case 1 not containing 64 "B" size drawers	X	
	Case 2 not containing 8 "A" size and 16 "C" size drawers	X	
	Any hole thru container	X	
	Component damaged affecting usability	X	
	Component damaged not affecting usability		X
	No gasket	X	
	Gasket not cemented down entirely		X
	Gasket deformed or torn	X	
	Center partition missing from drawers	X	
	Identification card guide missing from drawers	X	
	Drawer not provides with leather tab	X	
	Tab not securely riveted to drawer front	X	
	Force fit of lid on body	X	
	Lid loose on body with closure	X	
Workmanship	Panel warped more than 1/8 inch in length or width		X
	Drawers don't operate smoothly and freely		X
	More than one rivet, screw, or bolt missing, or loose unpeened rivet	X	
	One rivet, screw, or bolt missing, or loose unpeened rivet		X
	Sharp burr or silver that may cause injury	X	
Markings	Cases not clean; presence of dirt, sawdust, metal chips, or other foreign matter inside cases		X
	Omitted, incomplete, incorrect, or illegible	X	
Dimensions	Not neatly applied		X
	Not within tolerance specified on figures 1 thru 7	X	

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4.3.3.2 Examination of packaging. An examination shall be made to determine that packaging, packing, and markings comply with the requirement of section 5. The sample unit (s) shall be the shipping container (s) for complete case set (s).

EXAMINE	DEFECT	CLASSIFICATION	
		Major	Minor
Packaging & Packing (when specified)	Component missing or damaged	X	
	Material not as specified	X	

4.4 Test methods.

4.4.1 Environmental test. A sample case set, properly closed, shall be subjected to each of the following tests in accordance with the applicable procedures of MIL-STD-810. To expedite testing, additional cases may be submitted for environmental testing at the option of the manufacturer.

4.4.1.1 The following tests shall be conducted with the case set drawers inserted in their respective case prior to testing.

4.4.1.1.1 Low temperature. One case set shall be subjected to a low temperature test in accordance with MIL-STD-810, Method 502, Procedure I. At the end of the exposure period, the case set shall be inspected to determine compliance with 3.6.

4.4.1.1.2 High temperature. One case set shall be subjected to a high temperature test in accordance with MIL-STD-810, Method 501, Procedure I. At the conclusion of this test, the case set shall be inspected to determine compliance with 3.6.

4.4.1.1.3 Humidity. One case set shall be subjected to a humidity test in accordance with MIL-STD-810, Method 507, Procedure I for five cycles (120 hours). Each case shall be weighted prior to the test. At the conclusion of the test, the exterior moisture shall be wiped dry and each case reweighed prior to opening. The gain in weight of either case shall not exceed 5 percent of the initial weight of the respective cases. The cases shall then be inspected to determine compliance with 3.6.

4.4.1.1.4 Salt spray. One case set shall be subjected to a salt spray test in accordance with MIL-STD-810, Method 509 for 100 hours. The case set shall then be inspected to determine compliance with 3.6.

4.4.2 Drop test. Sample case sets with the drawers removed, shall be subjected to the drop test. The case sets shall be prepared for testing with 200 pounds of dummy load in each case. Each case shall be subjected to one free fall on each of the eight corners from a height of 24 inches. The case shall be positioned for the drop test with two diagonally opposite corners in a vertical line. The case shall fall to a rigid concrete surface. The case after dropping will remain symmetrically rectangular and steady (See 3.6.4). The case shall be inspected to determine compliance with 3.6.

4.4.3 Handle test. Following the test specified in 4.4.2, the sample case set with the drawers removed shall be subjected to the handle test. The dummy load of 200 pounds shall be retained in each case, and the cases lifted separately by each handle clear of the floor. The cases shall be lifted in this manner five times by each handle and held for five minutes each time. The handles shall remain tightly attached to the case and in good working condition (see 3.4.2). The case shall then be inspected to determine compliance with 3.6.

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5. PACKAGING

5.1 Packaging. For Acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of material is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contracting the responsible packaging activity.

6. NOTES

6.1 Intended use. The case set covered by this specification is intended for transporting and storage of small parts. In storage, cases may be stacked closed or stacked open to form multiple units.

6.2 Ordering data. Procurement document should specify:

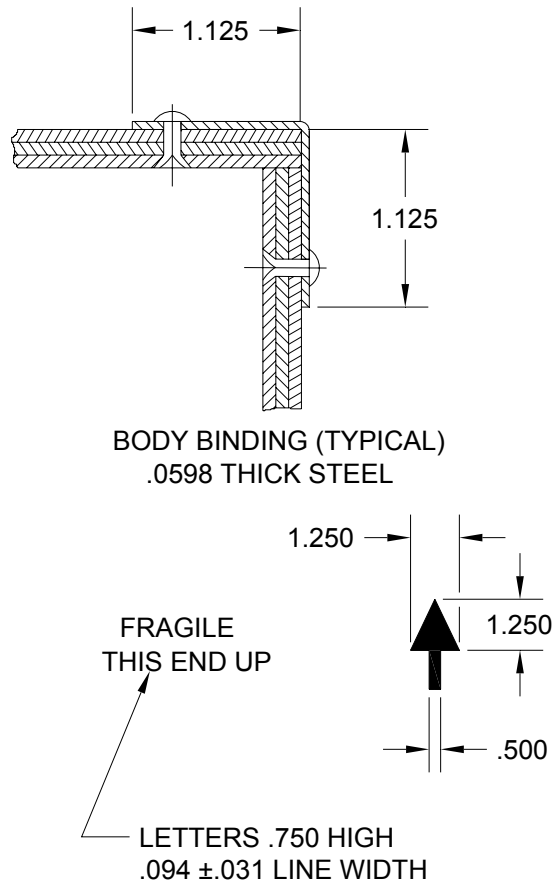
- a. Title, number, and date of this specification.
- b. Color of case (see 3.7.2).
- c. First article sample inspection and testing (see 3.1 and 4.2.1).
- d. Packaging requirements (see 5.1)

6.3 Minor corrosion. The term "minor corrosion" will be construed to mean minor streaking or staining which would in no way interfere with the opening or closing of the case or with the normal utility of the case set. Such minor corrosion will be confined to the exterior of the case set and will not be present on the interior of the case set.

6.4 Subject term (key word) listing.

Container
Container, Small Parts
Packaging, Small Parts
Shipment
Shipment, Miscellaneous Parts

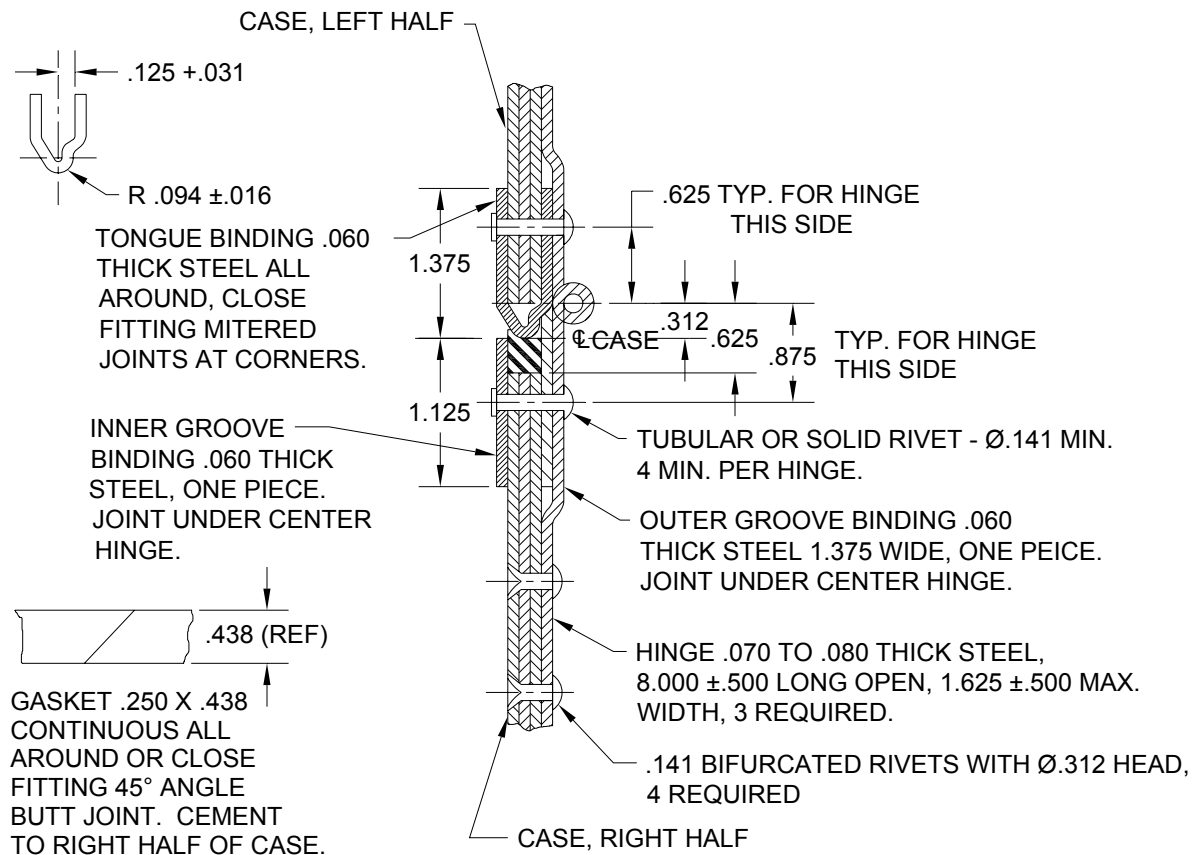
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DECAL OR STENCIL DETAIL

FIGURE 2

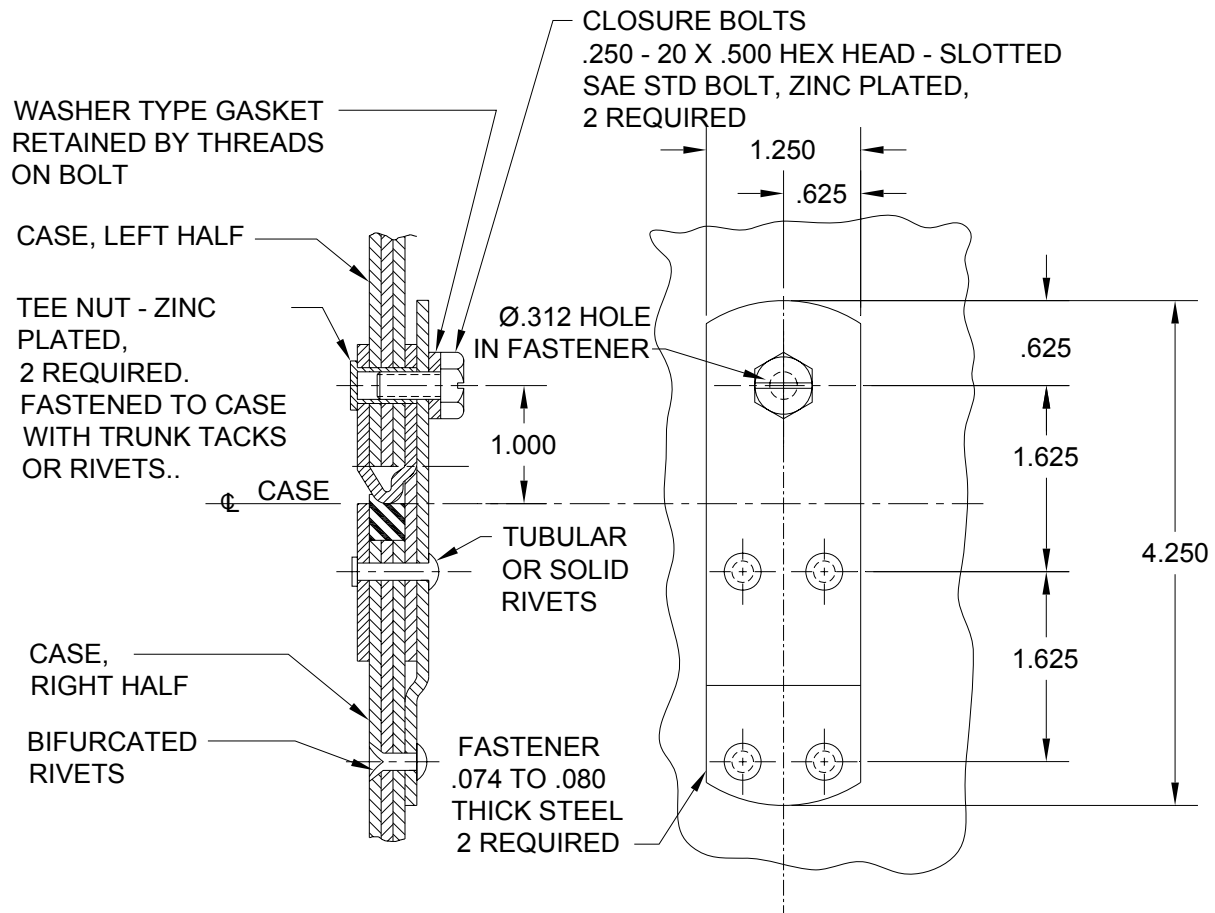
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SECTION THRU HINGE

FIGURE 3

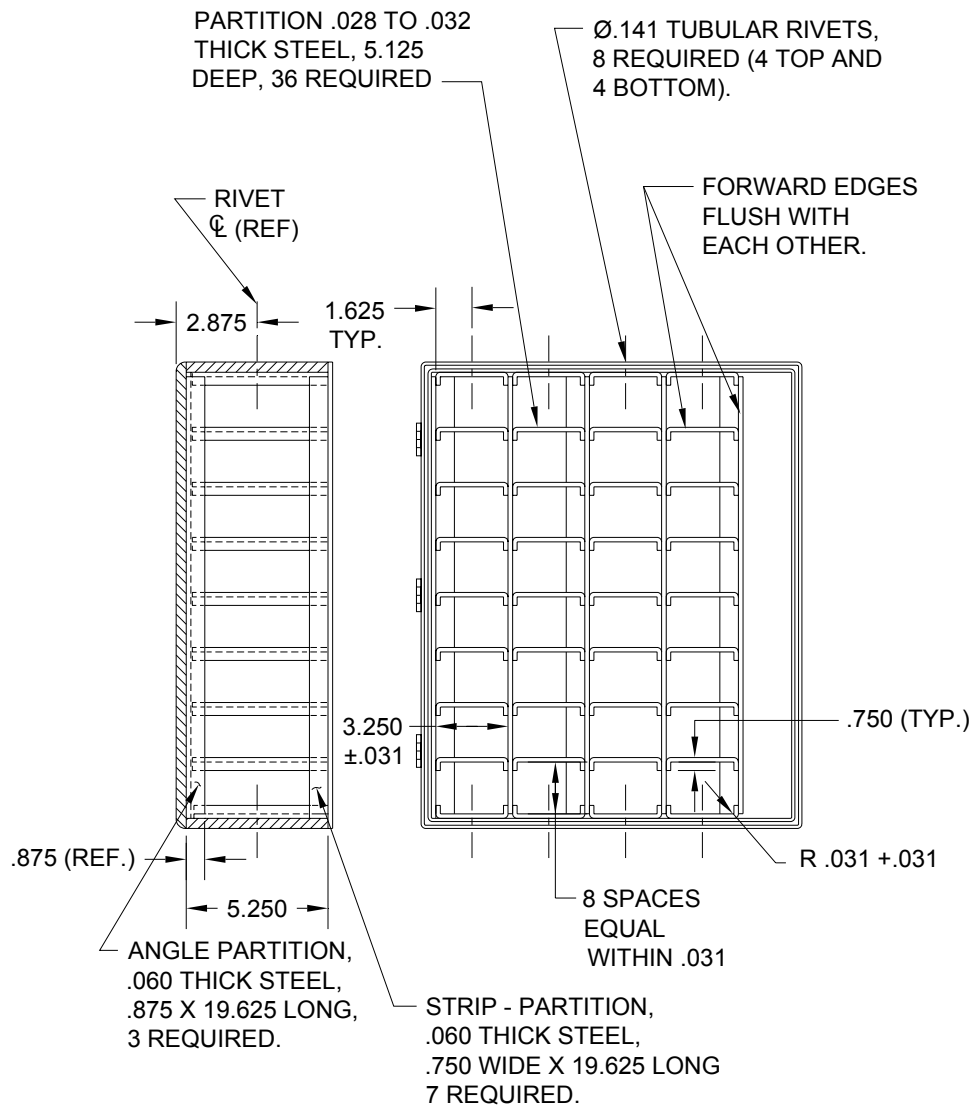
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SECTION THRU FASTENER

FIGURE 4

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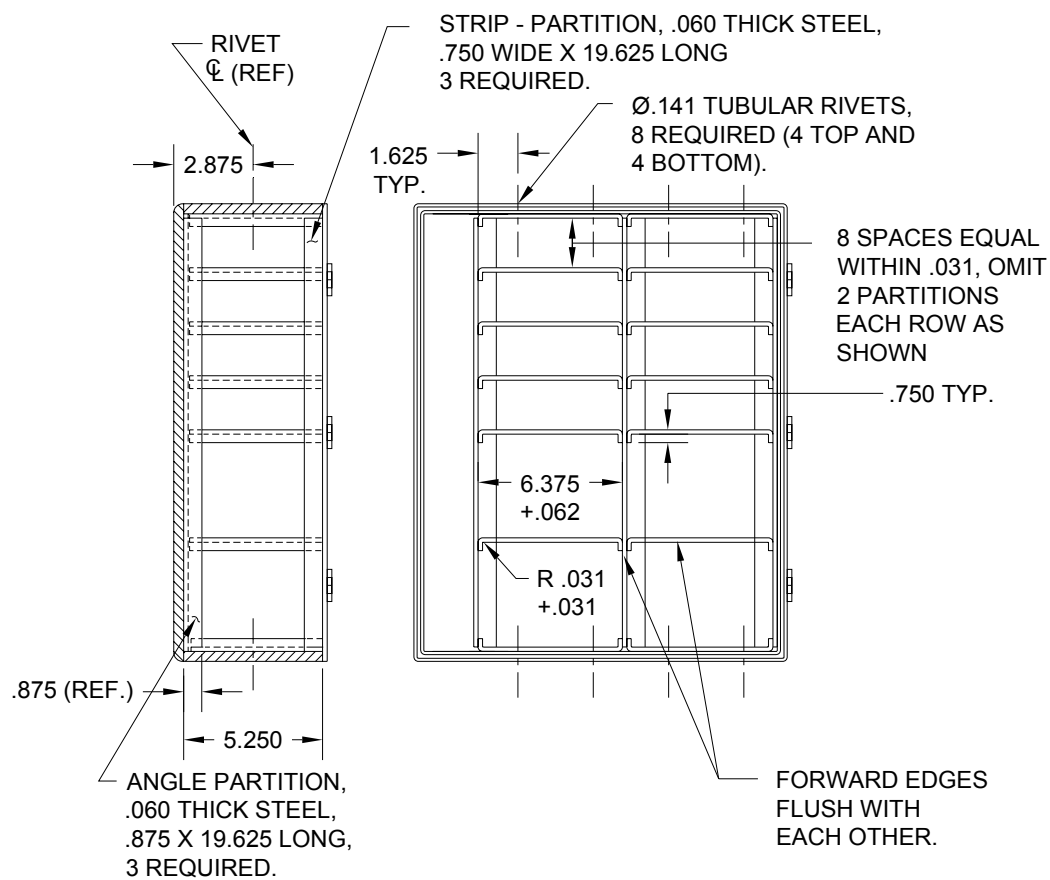


NOTE: SPOT WELD PARTITIONS PARTS TOGETHER.

PARTITION - CASE NO. 1
LEFT HALF OF CASE SHOWN
RIGHT HALF OF CASE OPPOSITE

FIGURE 5

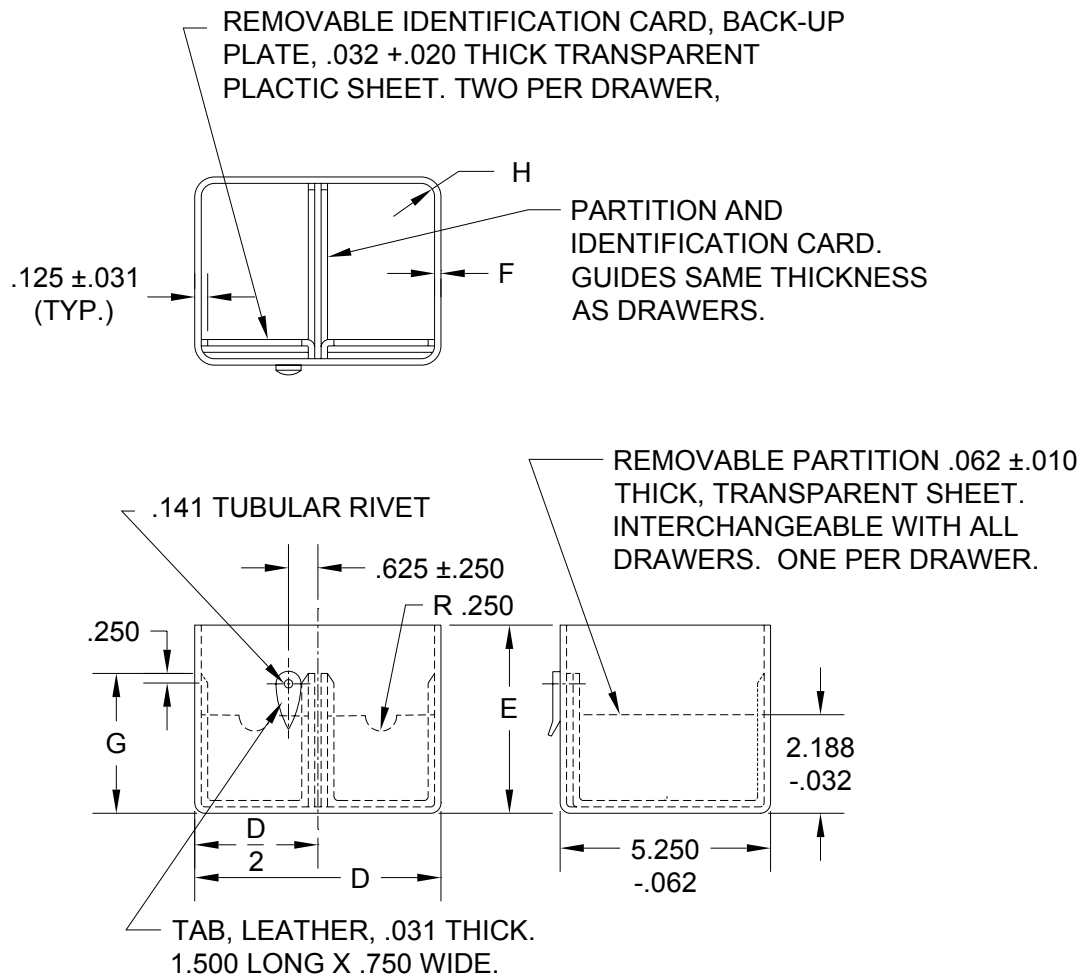
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PARTITIONS – CASE NO. 2
RIGHT HALF OF CASE SHOWN
LEFT HALF OF CASE OPPOSITE

FIGURE 6

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DRAWER SIZE	DIMENSIONS					QUANTITY REQ'D	CASE NO.
	D \pm .063	E \pm .063	F	G	H		
A	6.250	4.750	.125 \pm .025	3.500	1.000 MAX.	8	2
B	3.250	2.375	.100 \pm .010	1.875	.625 MAX	64	1
C	6.250	2.375	.125 \pm .010	1.875	.750 MAX	16	2

DRAWERS –
TRANSPARENT PLASTIC

FIGURE 7

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6.5 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Custodian:
Air Force – 11
Army - GL
Navy – SA

Preparing Activity:
DLA-IS

(Project No. 8115-2005-001)

Reviewing Activities:
Army – CR, CR4, SM
Navy – MC, OS
Air Force - 80, 84. 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change. You should verify the currency of the information above using the ASSIST online database at <http://assist.daps.dla.mil>.