

MIL-T-24558(SH)
8 May 1981

MILITARY SPECIFICATION
 TERMINAL BOXES, CONNECTION, FOR ELECTRICAL AND ELECTRONIC
 SYSTEMS, GENERAL SPECIFICATION FOR

This specification is approved for use by the Naval Sea Systems Command and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the general requirements for terminal connection boxes for electrical and electronic systems.

1.2 Classification. Terminal connection boxes shall be of the symbol numbers specified in the individual specification sheets (see 6.2 and 6.6).

2. APPLICABLE DOCUMENTS

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

SPECIFICATIONS

FEDERAL

- QQ-B-613 - Brass, Leaded and Nonleaded, Flat Products (Plate, Bar, Sheet and Strip).
- QQ-B-626 - Brass, Leaded and Non-Leaded; Rod, Shapes, Forgings, and Flat Products with Finished Edges (Bar and Strip).
- QQ-B-750 - Bronze, Phosphor, Bar, Plate, Rod, Sheet, Strip, Flat Wire, and Structural and Special Shaped Sections.
- QQ-C-576 - Copper Flat Products with Slit, Slit and Edge-Rolled, Sheared, Sawed or Machined Edges, (Plate, Bar, Sheet, and Strip).
- TT-E-489 - Enamel, Alkyd, Glass (For Exterior and Interior Surfaces).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Sea Systems Command, SEA 3112, Department of the Navy, Washington, DC 20362 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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- MIL-M-14 - Molding Plastics and Molded Plastic Parts; Thermosetting.
- MIL-S- 901 - Shock Tests, H.I. (High-Impact), Shipboard Machinery, Equipment and Systems, Requirements For.
- MIL-P-15024 - Plates, Tags and Bands for Identification of Equipment.
- MIL-P-15024/5 - Plates, Identification.
- MIL-E-17555 - Electronic and Electrical Equipment Accessories and Repair Parts: Packaging and Packing of.
- MIL-E-24142 - Enclosures for Electrical Fittings and Fixtures, General Specification For.
- MIL-I-45208 - Inspection System Requirements.
- MIL-T-55164 - Terminal Boards, Molded, Barrier, Screw and Stud Types, and Associated Accessories, General Specification For.

(See Supplement 1 for list of associated specification sheets.)

STANDARDS

FEDERAL

- FED-STD-H28 - Screw-Thread Standards for Federal Services.
- FED-STD-H28/2 - Unified Thread Form and Thread Series for Bolts, Screws, Nuts, Tapped Holes and General Applications.

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- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
- MIL-STD-108 - Definition of and Basic Requirements for Enclosure for Electric and Electronic Equipment.
- MIL-STD-167-1 - Mechanical Vibrations of Shipboard Equipment (Type I - Environmental and Type II - Internally Excited).
- MIL-STD-202 - Test Methods for Electronic and Electrical Component Parts.
- MIL-STD-454 - Standard General Requirements for Electronic Equipment.

PUBLICATIONS

MILITARY

- NAVSEA 0960-LP-000-4000 - Standard Electrical Symbol List.

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

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2.2 Other publication. The following document forms a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

UNIFORM CLASSIFICATION COMMITTEE AGENT

Uniform Freight Classification Ratings, Rules and Regulations

(Application for copies should be addressed to the Uniform Classification Committee Agent, Tariff Publication Officer, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

3. REQUIREMENTS

3.1 Specification sheets. Requirements for individual symbols of terminal connection boxes shall be as specified herein and in the applicable specification sheet. In the event of any conflict between requirements of this specification and the specification sheet, the latter shall govern (see 6.2). Documents referenced in the specification sheets shall be of the issue in effect on date of invitation for bid or request for proposal.

3.2 First article inspection. Prior to beginning production, a sample terminal connection box manufactured by production tools and processes shall be inspected as specified in 4.4 (see 6.3).

3.3 Materials. Materials shall be as specified herein and in accordance with the applicable specification sheets.

3.3.1 Recovered materials. Unless otherwise specified herein, all equipment, material, and articles incorporated in the products covered by this specification shall be new and shall be fabricated using materials produced from recovered materials to the maximum extent practicable without jeopardizing the intended use. The term "recovered materials" means materials which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. None of the above shall be interpreted to mean that the use of used or rebuilt products is allowed under this specification unless otherwise specifically specified.

3.3.2 Metals. Metals shall be corrosion-resistant. Copper, brass, and phosphor bronze materials shall be in accordance with QQ-C-576, QQ-B-613 or QQ-B-626 and QQ-B-750, respectively. Metal parts susceptible to stress corrosion cracking shall be stress relieved (see 6.8).

3.3.3 Non-metallic materials. Non-metallic materials shall be fungus-inert in accordance with requirement 4 of MIL-STD-454. Plastic materials shall be in accordance with MIL-M-14. Adequate measures shall be taken in molding or processing plastics to insure that stress build-up does not occur or is satisfactorily treated to relieve these stresses to prevent deterioration or failure of a part or assembly. The stress-relieving process shall be as required by the technical data furnished by the supplier of the raw material.

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3.3.4 Hardware. Unless otherwise specified in the applicable specification sheet, all hardware (bolts, nuts, screws, washers, and miscellaneous hardware) shall be of a good commercial grade material compatible with that of the basic fixture.

3.4 Design and construction.

3.4.1 Electrical rating. The electrical rating shall be as specified in the applicable specification sheet.

3.4.2 Wire terminating facilities. Wire terminating facilities shall be as specified in the applicable specification sheet.

3.4.3 Enclosure. Enclosure shall be as specified in the applicable specification sheet.

3.4.3.1 Submersible. Submersible (15-foot) (SBM-15) enclosures shall be in accordance with MIL-E-24142 and as specified herein.

3.4.3.2 Watertight. Watertight enclosures shall be as specified in the applicable specification sheet.

3.4.3.3 Stress relief. Metal enclosures shall be stress relieved and marked in accordance with MIL-E-24142.

3.4.3.4 Cleaning. The enclosure shall be furnished thoroughly cleaned of all brazing/welding flux and other corrosive agents. Cleaning agent shall be neutralized after cleaning.

3.4.3.5 Finish. Unless otherwise specified in the applicable specification sheet, the interior of the enclosures (covers optional) shall be primed and shall be painted white, using enamel in accordance with TT-E-489. Unless otherwise specified (see 6.2.1), the outside of the enclosure shall be neither primed nor painted.

3.4.4 Terminals. Terminal boards shall be in accordance with MIL-T-55164 of the type specified in the applicable specification sheet. Terminal lug assemblies and terminal lug bases shall be as specified in the applicable specification sheet.

3.4.4.1 Mounting brackets. Terminal board mounting brackets and pads shall be of brass and shall be as shown on figures 1 through 5. Mounting bracket and pad installation shall be as specified in the applicable specification sheet.

3.4.5 Threaded parts. Threads for all threaded fastening devices shall conform to FED-STD-H28 and FED-STD-H28/2. The threads shall be right hand, coarse-thread series, unified thread form, class 2A or 2B or American National thread form, class 2. Other thread series and classes, such as fine thread, may be used where it is necessary to assure functional operation of the equipment. Threads shall be checked during production run with "go" and "no go" gages to insure conformance to FED-STD-H28 and FED-STD-H28/2.

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3.4.6 Gaskets. Cover sealing gaskets shall be furnished and installed in accordance with MIL-E-24142.

3.4.7 Brazing and welding. Brazing and welding shall be in accordance with the best commercial practices. Heli-arc welding is an acceptable alternate to brazing.

3.4.8 Dimensions and tolerances. Dimensions shall be as shown in the applicable specification sheet. Unless otherwise specified in the applicable specification sheet, the following tolerances shall apply:

- (a) Fractional dimensions - Plus or minus 1/64 inch.
- (b) Decimal dimensions - Plus or minus 0.005 inch.
- (c) Angular dimensions - Plus or minus 0 degree 15 minutes.

Unless otherwise specified in the applicable specification sheet, a tolerance of plus or minus 1/32 inch is acceptable on fractional dimensions that are controlled by welding or brazing provided that this wider tolerance will not interfere with the interchangeability of assemblies or parts.

3.4.9 Drilling, countersinking, and tapping. All drilling, countersinking, and tapping shall be done before plating or finish is applied. Tapped holes that are used for normal replacement of parts shall be countersunk.

3.4.10 Sharp edges. All sharp edges and corners shall be given a slight radius.

3.5 Performance characteristics.

3.5.1 Vibration. The connection boxes shall conform to the vibration requirements of type I of MIL-STD-167-1. The connection boxes shall show no evidence of mechanical or electrical damage or loosening of parts following the test specified in 4.6.2.

3.5.2 Shock. The connection boxes shall conform to the shock requirements of grade A, class 1, type C of MIL-S-901. Following the test of 4.6.3, there shall be no signs of mechanical or electrical damage, breakage or loosening of parts and distortion of sides, bottom or cover of the enclosure.

3.5.3 Effectiveness of enclosure. The connection boxes shall show no signs of water leakage when subjected to the test specified in 4.6.4.

3.5.4 Dielectric withstanding voltage. The connection boxes shall conform to a dielectric withstanding voltage requirement of twice rated voltage, plus 1000 volts a.c. applied between isolated circuits and live parts and ground. Any evidence of arcing (other than at test probes), corona (visible, audible, or smell), flashover or punctured insulation shall be interpreted as failure to pass the test (see 6.5).

3.6 Designation and marking.

3.6.1 Equipment identification plates. Identification plates shall conform to types A, B, or C of MIL-P-15024 and to the requirements for normal service of MIL-P-15024/5. Material, marking and installation shall

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be as shown on figure 6 and as specified in the applicable specification sheet. As an option, identification marking may be molded (plastic enclosures only), engraved or stamped directly on the covers of the enclosures to provide a permanent identification. Marking shall not be located on gasketed surfaces of covers.

3.6.1.1 Filling. Filling of stamped, engraved, or molded marking with paint is not required.

3.6.1.2 Sharp edges. Sharp edges of plates shall be removed and corners shall be given a slight radius.

3.6.1.3 The enclosure manufacturer, if other than the terminal box supplier, shall be identified by marking on the interior surface of the cover.

3.6.2 Information plates. Unless otherwise specified (see 6.2) information plates shall be as specified in 3.6.1 except that they shall be blank. The option of molding, depressing or embossing the inscriptions or markings on the cover is not applicable for information plates.

3.6.3 Warning plates. Warning plates shall be as specified in the applicable specification sheet. Material shall be brass. Depressed lettering shall be filled with red enamel. The face of warning plates shall be neither primed nor painted. They shall be brazed on the cover as shown in the applicable specification sheet. All sharp edges and corners shall be given a slight radius.

3.7 Workmanship. The workmanship shall be in accordance with 3.7.1 through 3.7.5.

3.7.1 Mounting of parts. Parts or hardware shall be assembled and secured or mounted in the specified manner to satisfactorily accomplish the purpose for which intended. Equipment having missing, inoperative, defective, bent, broken, or otherwise damaged parts will not be acceptable.

3.7.2 Cleaning. After fabrication, and prior to assembly in the connection boxes, parts shall be cleaned of smudges; weld metal; metal chips; and mold release agents or any other foreign material which might detract from the intended operation, function, or appearance of the connection boxes. All corrosive material shall be removed. All assembled connection boxes shall be cleaned of contaminants such as lubricating oils, mold release agents, waxes, sand, corrosion products, solder fluxes, and dust. The nature of the contaminant shall be determined to the extent that a suitable cleaning solvent can be selected for its removal. The inertness of the materials of construction to the solvent shall be determined to prevent damage to electrical and mechanical properties. Cleaning processes shall have no deleterious effect on the connection boxes or parts.

3.7.3 Inthreaded parts or devices. Screws, nuts and bolts shall show no evidence of cross threading, mutilation, or detrimental or hazardous burrs.

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3.7.3.1 Tightness. All screw-type fasteners shall be tight. The word tight means the screw shall be firmly secured and that there shall be no relative movement possible between the attached parts.

3.7.4 Riveting. The riveting operation shall be carefully performed in order to assure that rivets are tight and satisfactorily headed with the rivet heads tightly seated against their bearing surface.

3.7.5 Welding/brazing. All welding/brazing shall be free of harmful defects such as cracks, porosity, undercuts, voids, and gaps. There shall be no burn-through. Fillets shall be uniform and smooth. Angular or thickness misalignment, warpage, or dimensional change due to heat from the welding/brazing operation shall be within permitted tolerances. There shall be no damage to adjacent parts resulting from the welding or brazing.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, the contractor may use his own or any other facilities suitable for the performance of the inspections 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 assure supplies and services conform to prescribed requirements.

4.1.1 Inspection system. The contractor shall provide and maintain an inspection system in accordance with MIL-I-45208 as provided in the data ordering document included in the contract.

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

- (a) First article inspection (see 4.4).
- (b) Quality conformance inspection (see 4.5).

4.3 Inspection conditions. Unless otherwise specified, all inspections shall be performed in accordance with the test conditions specified in the General Requirements of MIL-STD-202.

4.4 First article inspection. The sample for first article inspection shall be subjected to the examination and tests specified in table I in the order shown. Prior to submission of the sample for first article inspection, the Government inspector shall verify that the sample was manufactured with production tools and processes (see 6.2.1).

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TABLE I. First article inspection.

| Inspection | Requirement paragraph | Test method paragraph |
|--|-----------------------|-----------------------|
| Examination | 3.3, 3.4, 3.6, 3.7 | 4.6.1 |
| Dielectric withstanding voltage | 3.5.4 | 4.6.5 |
| Effectiveness of enclosure | 3.5.3 | 4.6.4 |
| Vibration | 3.5.1 | 4.6.2 |
| Shock | 3.5.2 | 4.6.3 |
| Effectiveness of enclosure | 3.5.3 | 4.6.4 |
| Dielectric withstanding voltage | 3.5.4 | 4.6.5 |
| Inspection of preparation for delivery | 5.1 | 4.6.6 ^{1/} |

^{1/} Inspection shall be first article type specified in MIL-E-17555.

4.4.1 Government inspection. When the contract specifies the first article inspection to be performed by the Government, the contractor via the Government inspector shall submit the first article sample to the laboratory specified (see 6.2.1 and 6.4) for the performance of the first article inspection.

4.4.2 Contractor inspection. When the contract specifies the first article inspection to be performed by the contractor, (see 6.2.1), the inspection shall be witnessed and the test results shall be verified by the Government inspector.

4.4.3 First article inspection report. For each acquisition, the contractor (or the Government laboratory, (see 4.4.1)) shall submit to the contracting activity for approval a complete report of all the first article inspection tests conducted. Also one copy of this report shall be forwarded to NAVSEA (see 6.5) for information and retention.

4.4.4 Commencement of production. Ordering of material and production shall not be started until a test report has been approved in writing by the Contracting Officer (see 4.4.3). Ordering of material and or commencement of production prior to the approval of the first article inspection report shall be at contractor's own risk. Approval of the sample tested on first article inspection authorizes the commencement of production, but does not relieve the contractor of the responsibility for compliance for production items meeting all requirements of this specification. Production items shall be manufactured by same production tools and processes and in the same facilities used for manufacturing the first article.

4.5 Quality conformance inspection.

4.5.1 Inspection lot. An inspection lot shall consist of all terminal connection boxes of the same symbol, produced under essentially the same conditions, and offered for inspection at one time.

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4.5.2 Group A inspection. Group A inspection shall consist of the inspections specified in 4.6.1.1 and 4.6.6.

4.5.2.1 Sampling plan. Statistical sampling and inspection shall be in accordance with MIL-STD-105 for general inspection level II. The acceptable quality level (AQL) shall be 1.5 percent defective.

4.5.3 Group B inspection. Group B inspection shall consist of the inspection specified in 4.6.4 and shall be made on sample units which have been subjected to and have passed the group A inspection of 4.5.2.

4.5.3.1 Sampling plan. The sampling plan shall be in accordance with MIL-STD-105 for special inspection level S-4. The sample size shall be based on the inspection lot size from which the sample was selected for group A inspection. The AQL shall be 4 percent defective.

4.6 Methods of inspection.

4.6.1 Examination. Examination shall be as specified in 4.6.1.1 and 4.6.1.2.

4.6.1.1 Visual and mechanical inspection. Each sample equipment shall be subjected to a thorough examination to ascertain that the design and construction (see 3.4), designation and marking (see 3.6) and workmanship (see 3.7) conform to the requirements of this specification.

4.6.1.2 Materials inspection. During first article inspection, the contractor shall make available to the Government inspector satisfactory evidence that the parts and materials used in the fabrication of the terminal connection box comply with all requirements of this specification. Satisfactory evidence shall consist of purchasing documents specifying applicable requirements or specifications, inspection and test reports or contractor certification. If certification is submitted, this certification shall contain a statement to the effect that inspection and test records are available upon request for Government inspection at any time within a time frame of not less than 1 year from date of contract.

4.6.2 Vibration. Equipment shall be tested in accordance with type I vibration of MIL-STD-167-1, except that the variable frequency test shall be omitted. Performance requirements shall be as specified in 3.5.1.

4.6.3 Shock. Equipment shall be tested in accordance with the Class HI shock test for grade A, class 1, type C of MIL-S-901. Performance requirements shall be as specified in 3.5.2.

4.6.4 Effectiveness of enclosure. Connection boxes shall be tested in accordance with MIL-STD-108 for submersible (SBM-15) or watertight enclosures as required for the enclosure ratings designated in the applicable specification sheets. Performance during and after the test shall be as specified in 3.5.3.

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4.6.5 Dielectric withstanding voltage. Connection boxes shall be tested in accordance with Method 301 of MIL-STD-202. The following details and exceptions shall apply:

- (a) Magnitude of test voltage—twice the rated voltage plus 1000 volts rms.
- (b) Nature of potential - a.c.
- (c) Points of applications - between isolated circuits and live parts and ground.
- (d) Examination after test - equipment shall be in accordance with requirements specified in 3.5.4.

4.6.6 Packaging inspection. The sampling and inspection of the preservation-packaging, packing, and marking shall be in accordance with the requirements of section 5. Marking shall be as specified herein (see 5.1.3).

5. PACKAGING

(The preparation for delivery requirements specified herein apply only for direct Government acquisitions. For the extent of applicability of the preparation for delivery requirements of referenced documents listed in section 2, see 6.9.)

5.1 Preservation-packaging, packing, and marking. The requirements and levels of preservation-packaging, packing, and marking for shipment shall be as specified (see 6.2.1). Unless otherwise specified (see 6.2.1), preservation-packaging, packing, and marking shall be in accordance with MIL-E-17555 as specified in 5.1.1, 5.1.2 and 5.1.3.

5.1.1 Preservation-packaging. Preservation-packaging shall be level A or C, as specified (see 6.2).

5.1.2 Packing. Packing shall be level A, B, or C, except that unit packages shall be boxed (see 6.2). Terminal connection boxes shall be packaged one each.

5.1.3 Marking. Shipment information shall be provided on interior packages and exterior shipping containers. Marking information shall include Military part number, symbol number, National Stock Number, contract number, contractor's name and destination.

6. NOTES

6.1 Intended use. Terminal connection boxes specified herein are intended for use in electrical and electronic systems primarily on Naval Ships.

6.2 Ordering data.

6.2.1 Acquisition requirements. Acquisition documents should specify the following:

- (a) Title, number and date of this specification.
- (b) Symbol number of terminal connection box required and title, number, and date of the applicable specification sheet (see 3.1).

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- (c) When priming or painting of the enclosure exterior is required (see 3.4.3.2).
- (d) If a wiring diagram holder is required (see 3.4.3).
- (e) Type of information plate required if other than that specified (see 3.6.2).
- (f) That prior to first article inspection, the Government inspector shall verify that the sample was manufactured with production tools and processes (see 4.4).
- (g) Whether contractor or Government inspection is required and designation of laboratory (see 4.4.1, 4.4.2 and 6.4).
- (h) Inspection system required (see 4.1.1).
- (i) Preservation-packaging, packing, and marking requirements if other than required by 5.1.

6.2.2 Data requirements. When this specification is used in a contract which invokes the provision of the "Requirements for Data" of the Defense Acquisition Regulation (DAR), the data identified below, which are required to be developed by the contractor, as specified on an approved Data Item Description (DD Form 1664), and which are required to be delivered to the Government, should be selected and specified on the approved Contract Data Requirement List (DD Form 1423) and incorporated in the contract. When the provisions of the "Requirements for Data" of the DAR are not invoked in a contract, the data required to be developed by the contractor and required to be delivered to the Government should be selected from the list below and specified in the contract.

| <u>Paragraph</u> | <u>Data requirements</u> | <u>Applicable DID</u> | <u>Option</u> |
|------------------|---------------------------------|-----------------------|---------------|
| 4.4.3 | First article inspection report | DI-T-4902 | Less block 7 |

(Copies of data item descriptions required by the contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer. Unless otherwise indicated, the issue in effect on date of invitation for bid or request for proposal shall apply.)

6.2.2.1 The data requirements of 6.2.2 and any task in section 3, 4, or 5 of this specification required to be performed to meet a data requirement may be waived by the contracting/acquisition activity upon certification by the offeror that identical data were submitted by the offeror and accepted by the Government under a previous contract for identical item acquired to this specification. This does not apply to specific data which may be required for each contract regardless of whether an identical item has been supplied previously (for example, test reports).

6.3 First article inspection. Invitations for bid should provide that the Government reserves the right to waive the requirement for samples for first article inspection, as 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.

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6.3.1 A contractor may contact NAVSEA before conducting tests to discuss technical details of testing if so desired.

6.4 Government inspection. Unless otherwise directed by NAVSEA, Government inspections should be performed at the Portsmouth Naval Shipyard, Equipment Testing Laboratory, Portsmouth, New Hampshire 03801.

6.5 NAVSEA. The word "NAVSEA" as used herein refers to the Naval Sea Systems Command, Code 3112, Department of the Navy, Washington, DC 20362.

6.6 Symbol number. Symbol number is a standard equipment designation. Symbol numbers are listed in Publication S300-AT-GTP-010/ESL.

6.7 Approval of the first article inspection report. The Contracting Officer or his authorized representative (Naval Shipyards, Private Shipyards/Supervisor of Shipbuilding Conversion and Repair, NAVSEA field activities and Defense Logistic Agencies) will, by written notice to the contractor, waive, approve, conditionally approve, or disapprove the first article inspection report. When it is deemed necessary, the Contracting Officer should forward the first article inspection report to NAVSEA for resolution on acceptance or non-acceptance of marginal or nonconforming supplies.

6.8 Stress-corrosion cracking. Stress-corrosion cracking characteristics are of primary concern in material selection for marine service. High residual stresses in tension in certain materials can cause stress-corrosion cracking when it is exposed to corrosive environment. Stress-corrosion cracking occurs under tensile stresses which are induced into metal parts that are formed by bending or drawing or that are fabricated by welding.

6.9 Sub-contracted material and parts. The preparation for delivery requirements of referenced documents listed in section 2 do not apply when material and parts are acquired by the contractor for incorporation into the equipment and lose their separate identity when the equipment is shipped.

Preparing activity:
Navy - SH
(Project 5940-N856)

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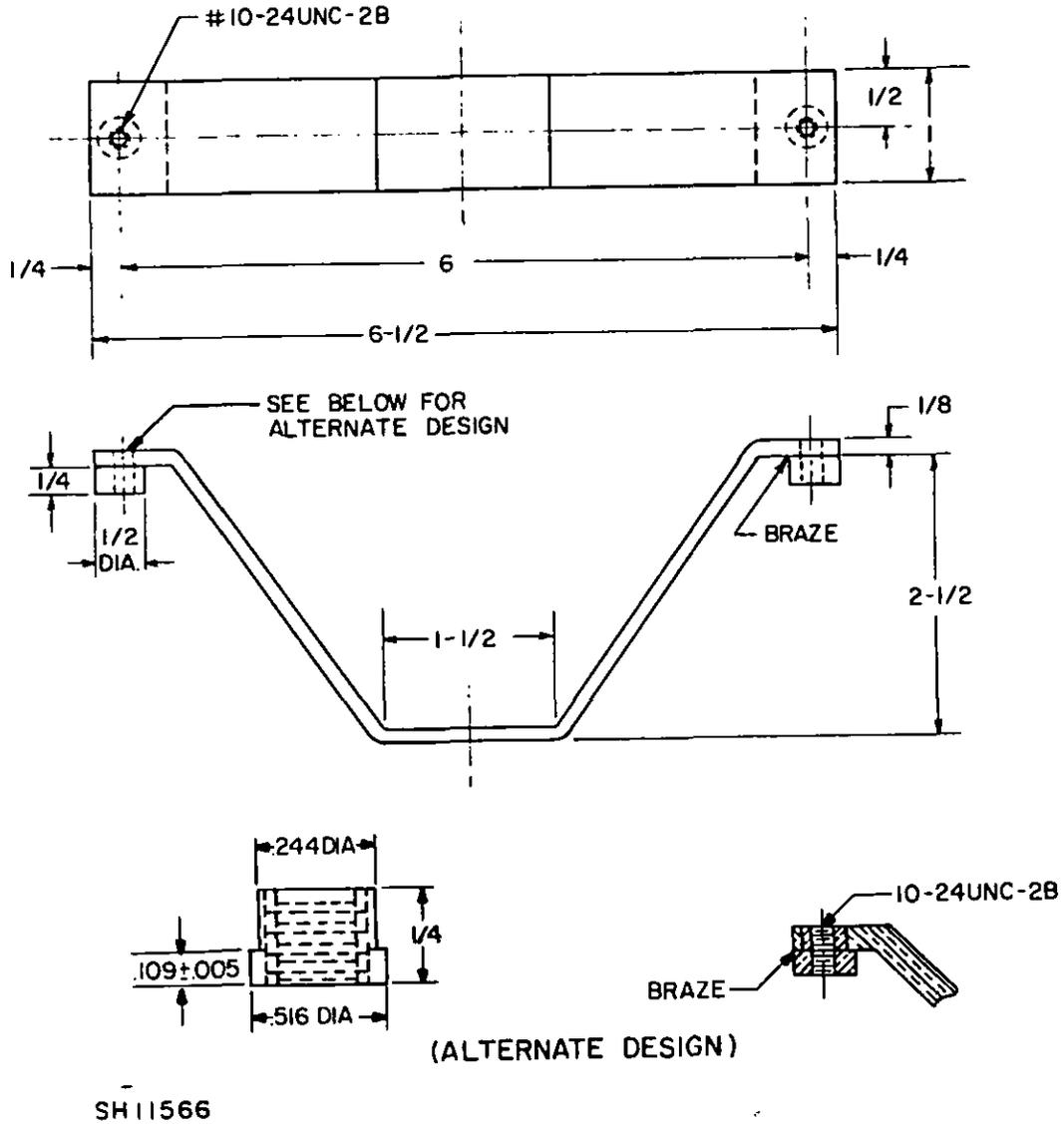
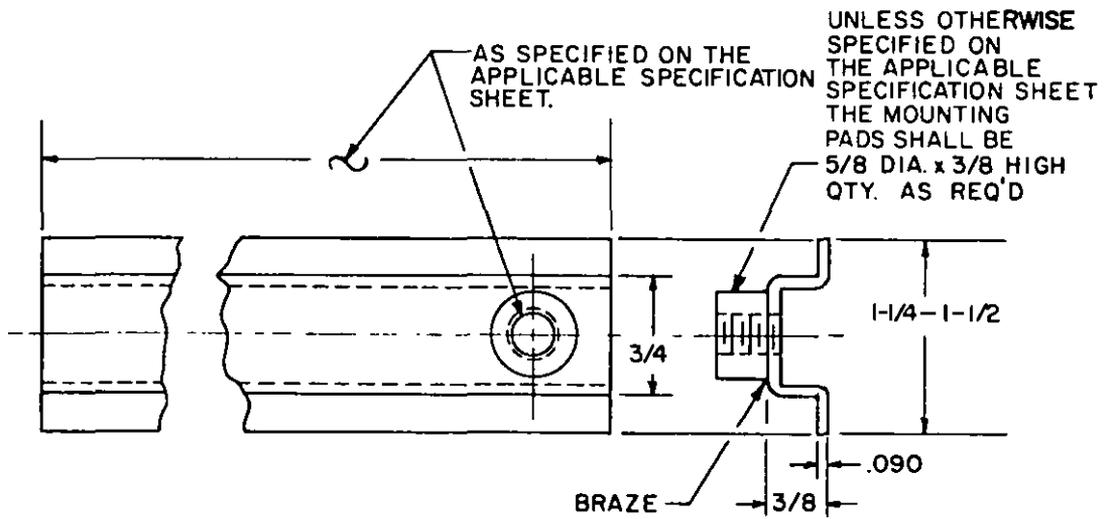
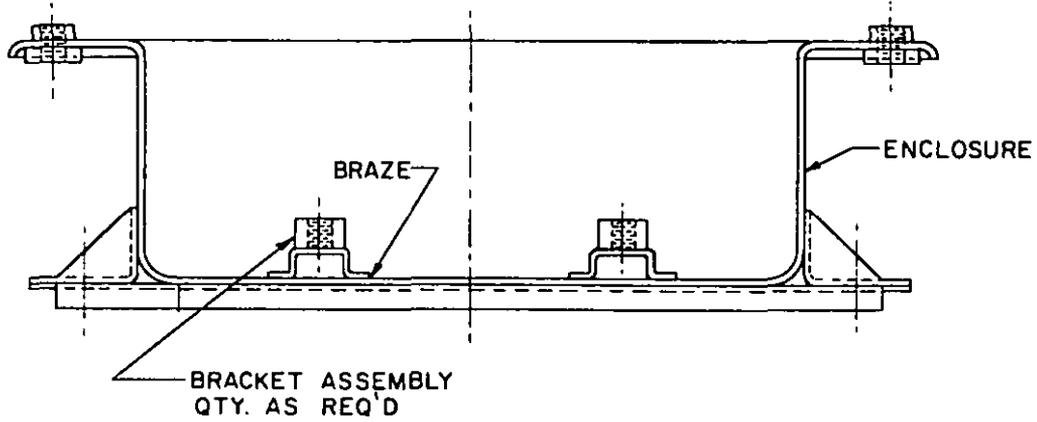


FIGURE 1. Terminal board mounting bracket.

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FIGURE 2. Terminal board mounting bracket.

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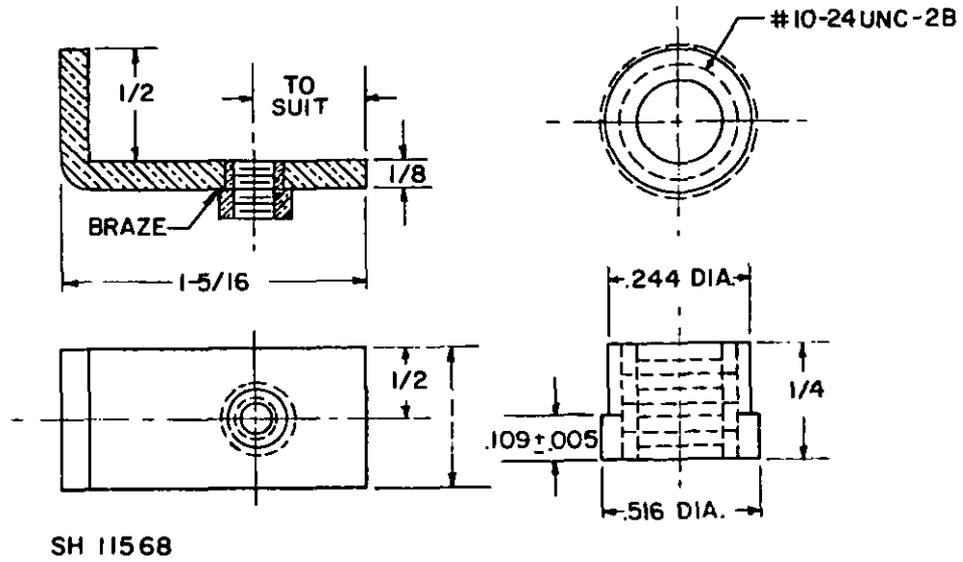


FIGURE 3. Terminal board mounting bracket.

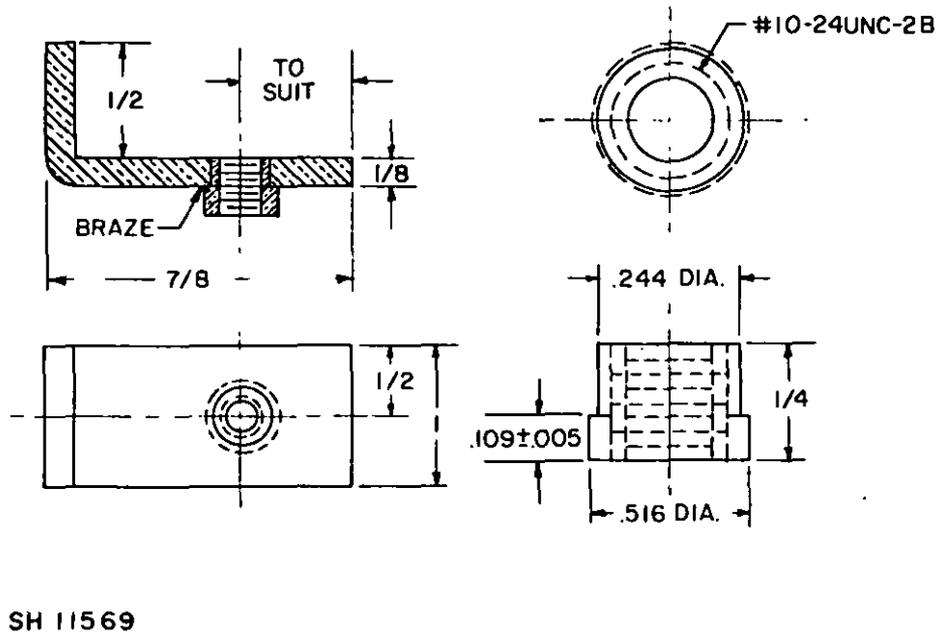
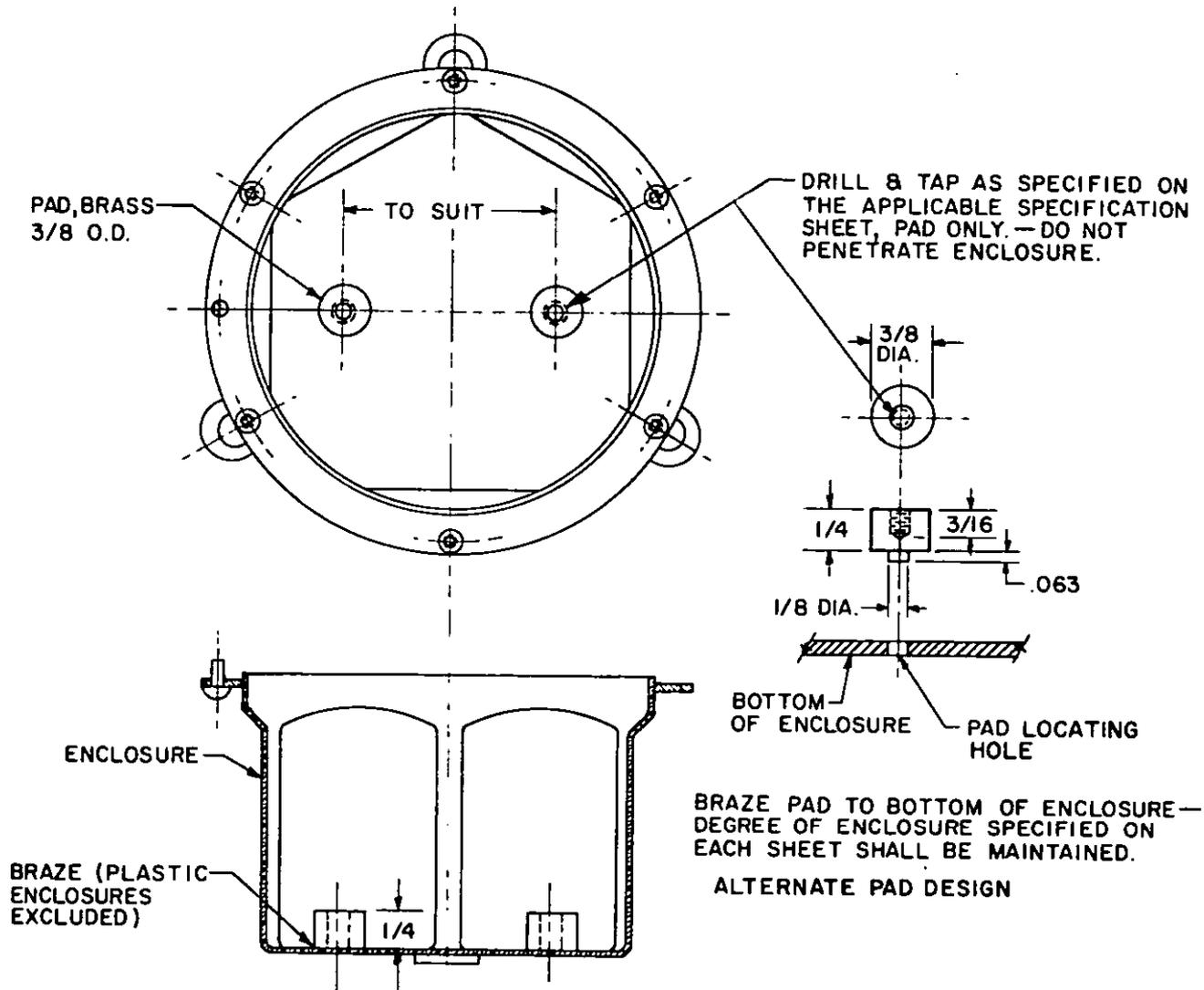


FIGURE 4. Terminal board mounting bracket.

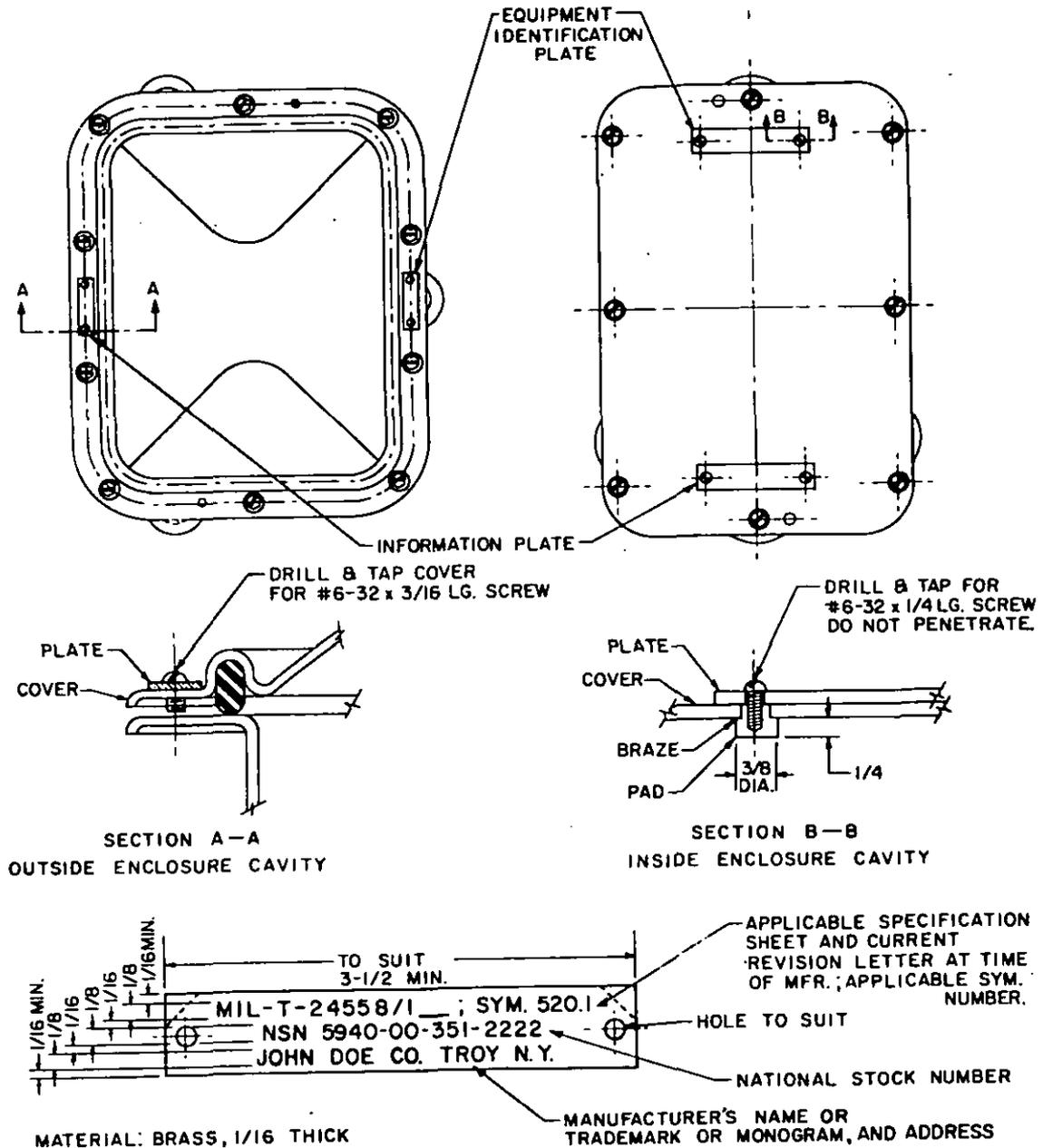
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FIGURE 5. Terminal board mounting pads.

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- NOTES:
1. IDENTIFICATION PLATE MARKING SHALL BE AS SHOWN. MARKINGS SHALL BE DEPRESSED, EMBOSSED OR ETCHED IN THE METAL.
 2. INFORMATION PLATE SHALL BE BLANK. IT WILL BE MARKED AT THE TIME OF INSTALLATION BY THE INSTALLING ACTIVITY.

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FIGURE 6. Typical equipment identification and information plates design and installation details.

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APPENDIX

USAGE DATA

10. SCOPE

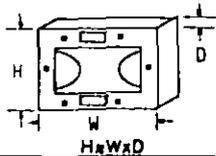
10.1 This Appendix describes the selection and uses of the various terminal connection boxes.

20. USAGE

20.1 Table I lists the terminal connection boxes used in electrical but primarily electronic systems (such as communications, and telephone service).

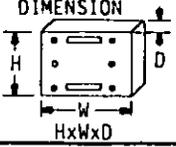
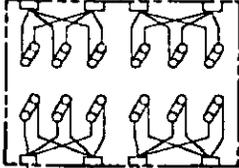
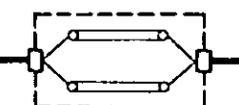
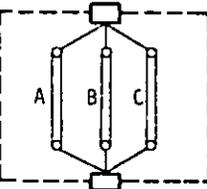
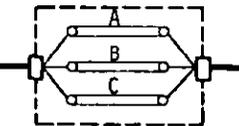
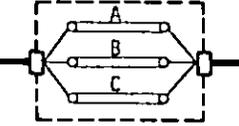
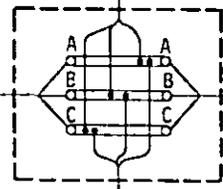
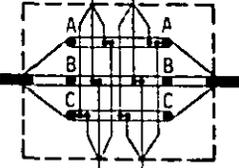
20.2 Table II lists terminal connection boxes used for connecting electric power cables.

TABLE I. Terminal connection boxes for electrical and electronic systems.

| Military Spec Sheet MIL-T24558/ | Symbol Number | Dimensions  HxWxD | Weight Lbs. | Number of Terminals | Maximum Number of Wires | Recommended Wire Terminal List | | Maximum Number of Wires Connected to a single Terminal |
|------------------------------------|---------------|---|----------------|---------------------|-------------------------|--------------------------------|------------------------------------|--|
| | | | | | | MIL-T-16366 TYPE | MIL-T-7928 MS-17143 Dash No. | |
| 1 | 520.1 | 4 5/8 Dia x 2 3/4 | 1.8 | 6 | 18 | L-81 | -4,-5,-6 | 3 |
| 2 | 435.1 | 6 3/4 Dia x 4 1/8 | 3.25 | 8 | 32 | L-80 | -1,-2,-3 | 4 |
| 3 | 528 | 5 3/4 Dia x 3 1/2 | 2.5 | 10 | 30 | L-81 | -4,-5,-6 | 3 |
| 4 | 432.1 | 11 x 8 x 5 1/8 | 6.8 | 20 | 80 | L-80 | -1,-2,-3 | 4 |
| 5 | 434 | 9 x 6 x 5 1/4 | 5.4 | 30 | 90 | L-81 | -4,-5,-6 | 3 |
| 6 | 433.1 | 11 3/8 x 13 3/8 x 7 5/8 | 16.9 | 40 | 160 | L-80 | -1,-2,-3 | 4 |
| 7 | 522.1 | 11 3/8 x 13 3/8 x 7 5/8 | 16.4 | 48 | 144 | L-81 | -4,-5,-6 | 3 |
| 8 | 446 | 13 3/8 x 16 3/8 x 7 5/8 | 23.6 | 60 | 240 | L-80 | -1,-2,-3 | 4 |
| 9 | 525 | 11 3/8 x 13 3/8 x 7 5/8 | 16.5 | 72 | 216 | L-81 | -4,-5,-6 | 3 |
| 10 | 438 | 15 3/8 x 20 3/8 x 7 5/8 | 32.0 | 80 | 320 | L-80 | -1,-2,-3 | 4 |
| 11 | 523.1 | 13 3/8 x 16 3/8 x 7 5/8 | 24.3 | 96 | 288 | L-81 | -4,-5,-6 | 3 |
| 12 | 450 | 15 3/8 x 27 3/8 x 7 5/8 | 43.6 | 120 | 480 | L-80 | -1,-2,-3 | 4 |
| 13 | 524.1 | 15 3/8 x 20 3/8 x 7 5/8 | 33.5 | 144 | 432 | L-81 | -4,-5,-6 | 3 |
| 14 | 451 | 23 3/8 x 17 3/8 x 7 5/8 | 36.9 | 192 | 576 | L-81 | -4,-5,-6 | 3 |
| 15 | 452 | 27 5/8 x 23 5/8 x 6 7/8 | 36.3 | 200 | 800 | L-80 | -1,-2,-3 | 4 |
| 16 | 453 | 29 3/8 x 17 3/8 x 7 5/8 | 58.0 | 288 | 864 | L-81 | -4,-5,-6 | 3 |
| 17 | 454 | 27 5/8 x 23 5/8 x 6 7/8 | 40.0 | 384 | 1152 | L-81 | -4,-5,-6 | 3 |
| 18 | 400.1 | 4 5/8 Dia x 2 3/4 | 1.8 | 4 | 8 | L-80 | -1,-2,-3 | 2 |
| 18 | 400.2 | 5 3/4 Dia x 3 1/2 | 2.4 | 4 | 12 | L-80 | -1,-2,-3 | 3 |
| 18 | 400.3 | 5 3/4 Dia x 3 1/2 | 2.4 | 4 | 12 | L-80 | -1,-2,-3 | 3 |
| 18 | 400.4 | 4 5/8 Dia x 2 3/4 | 1.8 | 4 | 8 | L-80 | -1,-2,-3 | 2 |
| 19 | 444 | 6 3/4 Dia x 4 1/8 | 3.25 | 4 | 8 | L-80 | -1,-2,-3 | 4 |
| 20 | 529 | 11 x 8 x 5 1/8 | 6.8 | 10 | 20 | L-80 | -1,-2,-3 | 4 |

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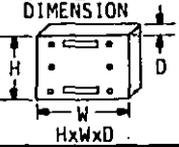
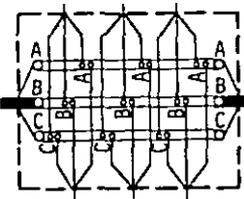
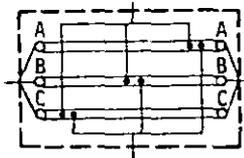
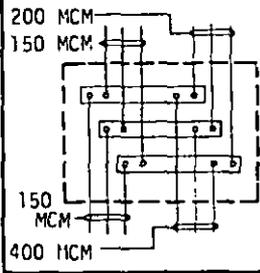
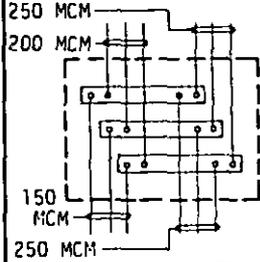
Table II - Terminal Connections Boxes for Electrical Systems (500 Volts Maximum).

| MILITARY SPECIFICATION SHEET MIL-T-24558/ | SYMBOL NUMBER | DIMENSION  | WIRING DIAGRAM (Note entry of cables) | CABLE SIZE MCM-MAX. | | WEIGHT |
|--|---|--|---|---|--------|--------|
| | | | | BUS | BRANCH | |
| 21 | 476.1 | $11\frac{3}{8} \times 13\frac{3}{8} \times 7\frac{5}{8}$ |  | 23/23 | | 16.7 |
| 22 | 415 415.1 415.2 415.3 415.4 | $11\frac{3}{8} \times 13\frac{3}{8} \times 7\frac{5}{8}$ |  | 75/75 100/100 125/125 150/150 200/200 | | 19.8 |
| 23 | 403.1 | $9 \times 6 \times 5\frac{1}{4}$ |  | 75/75 | | 5.4 |
| 24 | 416 | $11 \times 8 \times 5\frac{1}{8}$ |  | 75/75 | | 8.1 |
| 25 | 418.1 418.2 418.3 | $16\frac{3}{8} \times 15\frac{3}{8} \times 7\frac{5}{8}$ |  | 250/250 300/300 400/400 | | 33 |
| 26 | 572.1 | $13\frac{3}{8} \times 16\frac{3}{8} \times 7\frac{5}{8}$ |  | 75/75 | 40/40 | 29.9 |
| 27 | 573.1 | $13\frac{3}{8} \times 19\frac{3}{8} \times 7\frac{5}{8}$ |  | 75/75 | 40 | 36.8 |

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APPENDIX

Table II - Terminal Connections Boxes for Electrical Systems (500 Volts Maximum)-Cont'd

| MILITARY SPECIFICATION SHEET MIL-T-24558/ | SYMBOL NUMBER | DIMENSION  HxWxD | WIRING DIAGRAM (Note entry of cables) | CABLE SIZE MCM-MAX. | | WEIGHT |
|--|---------------|---|---|------------------------|--------|--------|
| | | | | BUS | BRANCH | |
| 28 | 574.1 | $13\frac{3}{8} \times 23\frac{3}{8} \times 7\frac{5}{8}$ |  | 75/75 | 40 | 36.8 |
| 29 | 575.1 | $13\frac{3}{8} \times 16\frac{3}{8} \times 7\frac{5}{8}$ |  | 200/200 | 75/75 | 31 |
| 30 | 576.1 | $23\frac{5}{8} \times 27\frac{5}{8} \times 6\frac{7}{8}$ |  | SEE WIRING DIAGRAM | | 81.4 |
| | 577.1 | |  | | | |

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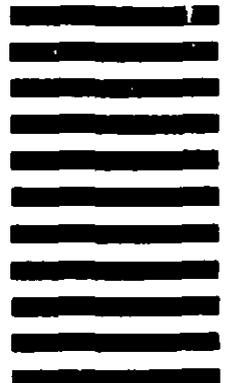
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