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* INCH-POUND *

W-J-800F
July 24, 1992
SUPERSEDING
W-J-800E
25 April 1984

FEDERAL SPECIFICATION

JUNCTION BOX: EXTENSION, JUNCTION BOX; COVER, JUNCTION BOX (STEEL, CADMIUM, OR ZINC-COATED)

This specification is approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE

1.1 Scope. This specification covers sheet-steel junction boxes, junction box extensions, and junction box covers for use with rigid metallic, intermediate metallic conduit, electrical metallic tubing, flexible metallic conduit, armored cable, nonmetallic sheathed cable and nonmetallic tubing when installed in accordance with the National Electric Code. It does not cover nonmetallic junction boxes, cast metal boxes, conduit bodies or hinged covered boxes.

1.2 Types. Junction boxes, extensions, and covers furnished under this specification shall be of the following types, as specified (see 6.2):

Type I - Octagon junction box
Type II - Square junction box
Type III - Junction box
Type IV - Device box, sectional type (gangable)
Type V - Octagon junction box extension ring
Type VI - Square junction box extension ring
Type VII - Junction box ring
Type VIII - Covers
Type IX - Device box, welded type (nongangable)

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Beneficial comments (recommendations, additions, deletions) and any pertinent
*data which may be of use in improving this document should be addressed to: *
*Commanding Officer (Code 156), Naval Construction Battalion Center, *
*621 Pleasant Valley Road, Port Hueneme, CA 93043-4300, by using the *
Standardization Document Improvement Proposal (DD Form 1426) appearing at the
*end of this document or by letter. *
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FSC 5975

1.3 Sizes. Junction boxes, extensions, and covers furnished under this specification shall comply with NEMA OS-1 and be of standard commercial sizes listed in table I and as specified (see 6.2).

1.4 Styles. Junction boxes, extensions, and covers furnished under this specification shall comply with NEMA OS-1 and be of the styles listed in table I and as specified (see 6.2).

2. APPLICABLE DOCUMENTS

2.1 Government documents.

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

Federal Specifications

PPP-B-601 - Boxes, Wood, Cleated-Plywood
PPP-B-621 - Boxes, Wood, Nailed and Lock-Corner
PPP-B-636 - Boxes, Shipping, Fiberboard
PPP-B-640 - Boxes, Fiberboard, Corrugated Triple-Wall

Federal Standards

FED-STD-H28 - Screw Threads for Federal Services
FED-STD-123 - Marking for Shipment (Civil Agencies)

Military Specifications

MIL-P-116 - Preservation, Methods of
MIL-E-17555 - Electronic and Electrical Equipment Accessories, and Repair Parts, Packaging and Packing of

Military Standards

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129 - Marking for Shipment and Storage
MIL-STD-147 - Palletized Unit Loads

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

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on the date of invitation for bids or request for proposal shall apply.

National Electrical Manufacturers Association (NEMA):

NEMA OS-1 - Sheet Steel Outlet Boxes, Device Boxes, Covers and Box Supports

(Application for copies should be addressed to the National Electrical Manufacturers Association, 2101 L Street, N.W., Washington, DC 20037.)

ASTM:

ASTM D3951 - Standard Practice for Commercial Packaging

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

Underwriters Laboratories Inc. (UL):

UL 514A - Standard for Safety, Metallic Outlet Boxes
UL 514B - Standard for Safety, Fittings for Conduit and Outlet Boxes

(Application for copies should be addressed to the Underwriters Laboratories, Inc., 333 Pfingsten Road, Northbrook, IL 60062.)

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

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

3. REQUIREMENTS

3.1 Description. The junction boxes, extensions, and covers specified in this document shall be constructed of steel, coated with a UL approved coating, usually zinc or cadmium, as specified (see 6.2). Their dimensions and design shall conform to the requirements of UL 514A, UL 514B, NEMA OS-1, and Table I. All bolts and screws shall have standard screw threads in accordance with FED-STD-H28.

3.2 First article. When specified (see 6.2), the contractor shall furnish one junction box, extension, and cover of each type included under a specific contract for first article inspection and approval (see 4.2.1 and 6.4).

3.3 Standard commercial product. The junction boxes, extensions, and covers shall, as a minimum, be in accordance with the requirements of this specification and shall be the manufacturer’s standard commercial product. Additional or better features which are not specifically prohibited by this specification but which are a part of the manufacturer’s standard commercial product, shall be included in the junction boxes, extensions, and covers being furnished. A standard commercial product is a product which has been sold or is

being currently offered for sale on the commercial market through advertisements or manufacturer's catalogs, or brochures, and represents the latest production model.

3.4 Materials. Materials used shall be free from defects which would adversely affect the performance or maintainability of individual components or of the overall assembly. Materials not specified herein shall be of the same quality used for the intended purpose in commercial practice. Unless otherwise specified herein, all equipment, material, and articles incorporated in the work covered by this specification are to be new and fabricated using materials produced from recovered materials to the maximum extent possible 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. Unless otherwise specified, none of the above shall be interpreted to mean that the use of used or rebuilt products is allowed under this specification.

3.5 Knockouts. Knockouts shall be provided. Where applicable, location of knockouts shall be in accordance with standards of NEMA OS-1.

3.6 Steel fabrication. The steel used in fabrication shall be free from kinks, sharp bends, and other conditions which would be deleterious to the finished product. Manufacturing processes shall not reduce the strength of the steel to a value less than intended by the design. Manufacturing processes shall be done neatly and accurately. All bends shall be made by controlled means to insure uniformity of size and shape.

3.7 Codes and standards. The boxes, extensions, and covers shall conform to the requirements of UL 514A and UL 514B as applicable.

3.7.1 Compliance. Prior to approval of the first shipment, the contractor shall submit to the contracting officer, or his authorized representative, satisfactory evidence that the boxes, extensions, and covers he proposes to furnish under this specification meet the requirements of UL 514A and UL 514B as applicable.

4. QUALITY ASSURANCE PROVISIONS

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

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this document shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in this document shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the

contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.1.2 Component and material inspection. Components and materials shall be inspected in accordance with all the requirements specified herein and in applicable referenced documents.

4.1.3 Standards compliance. The contractor shall make available to the contracting officer or his authorized representative evidence of compliance with the applicable standard(s) cited in 3.3. The Government reserves the right to examine and test all junction boxes, extensions, or cover plates to determine the validity of the certification.

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

a. First article inspection (see 4.2.1)
b. Quality conformance inspection (see 4.2.2)

4.2.1 First article inspection. The first article inspection shall be performed on junction boxes, extensions, or cover plates of each type or style when a first article is required (see 3.2 and 6.2). This inspection shall include the examination of 4.4, the tests of 4.5, and, when specified, the first article pack inspection of 4.6. The first article may be either a first production item or a standard production item from the supplier's current inventory provided the item meets the requirements of the specification and is representative of the design, construction, and manufacturing technique applicable to the remaining items to be furnished under the contract.

4.2.2 Quality conformance inspection. The quality conformance inspection shall include the examination of 4.4, the tests of 4.5, and the preparation for delivery inspection of 4.6. This inspection shall be performed on the samples selected in accordance with 4.3.

4.3 Sampling. Sampling and inspection procedures shall be in accordance with MIL-STD-105. The unit of product shall be one junction box, one junction box extension, and one junction box cover. All junction boxes, junction box extensions and junction box covers offered for delivery at one time shall be considered a lot for the purpose of inspection.

4.3.1 Sampling for examination. Guidance for inspection level and an Acceptable Quality Level (AQL) is provided in 6.5.

4.3.2 Sampling for tests. Guidance for inspection level and an AQL is provided in 6.5.

4.4 Examination. Each of the samples selected shall be examined for compliance with the requirements in section 3 of this document. This element of inspection shall encompass all visual examinations and dimensional measurements not involving tests. Noncompliance with any specified requirements or presence of one or more defects preventing or lessening maximum efficiency shall constitute cause for rejection.

4.5 Tests. Each sample selected shall be tested to determine conformance to the applicable requirements of UL 514A and NEMA OS-1. Where requirements specified herein duplicate those of the UL standard and NEMA standard, the applicable test need not be performed.

4.6 Preparation for delivery inspection. The inspection of the preservation, packing, and marking shall be in accordance with the requirements of section 4 of MIL-E-17555. The inspection shall consist of the quality conformance inspection; and, when specified (see 6.2), a first article pack shall be furnished for examination and test within the timeframe required (see 6.2).

5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging. Preservation and packaging shall be level A or commercial as specified (see 6.2).

5.1.1 Level A.

5.1.1.1 Unit protection. Each junction box, extension, and cover shall be cleaned, dried, and preserved method III in accordance with MIL-P-116.

5.1.1.1.2 Intermediate pack. The intermediate container quantity shall be as specified (see 6.2). Intermediate containers shall conform to PPP-B-636; class weather-resistant; type, grade, and style shall be at the contractor's option. Intermediate containers shall be uniform in size and shape, and shall contain equal unit pack quantities within the weight limitations of the container.

5.1.2 Commercial. Junction boxes, extensions, and covers shall be packaged in accordance with ASTM D3951.

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

5.2.1 Level A. Items shall be packed in containers conforming to PPP-B-601, overseas type or PPP-B-621, class 2. Assembly, closure, and strapping shall be in accordance with the appendix of the applicable box specification. Contents shall be cushioned, blocked, or braced to prevent movement within containers.

5.2.2 Level B. Items shall be packed in containers conforming to PPP-B-601, domestic type; PPP-B-621, class 1; PPP-B-636, class weather-resistant; or PPP-B-640, class 2. Assembly, closure, and strapping shall be in accordance with the appendix of the applicable box specification. Strapping of individual containers is not required when a load is palletized in accordance with 5.3. Contents shall be cushioned, blocked, or braced to prevent movement within containers.

5.2.3 Commercial. Items shall be packed in accordance with ASTM D3951.

5.3 Palletization. When specified (see 6.2), material shall be palletized in accordance with MIL-STD-147.

5.4 Marking.

5.4.1 Military agencies. Shipments to military agencies shall be marked in accordance with MIL-STD-129.

5.4.2 Civil agencies. Shipments to civil agencies shall be marked in accordance with FED-STD-123.

6. NOTES

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

6.1 Intended use. Junction boxes, junction box extensions, and junction box covers are intended for use with rigid metallic, intermediate metallic conduit, electrical metallic tubing, flexible metallic conduit, and armored cable.

6.2 Ordering data. Purchasers should select the preferred options permitted herein and include the following information in acquisition documents:

a. Title, number and date of this specification.
b. Type of junction box, extension, or cover required (see 1.2).
c. Size of junction box, extension, or cover required (see 1.3).
d. Style of junction box, extension, or cover required (see 1.4).
e. Issue of document required, if different than as specified (see 2.1.1).
f. Material finish desired (see 3.1).
g. When a first article is required for inspection and approval (see 3.2, 4.2.1, and 6.4).
h. When a first article pack inspection is required and timeframe required for submission (see 4.6).
i. Level of preservation and packaging and level of packing required (see 5.1 and 5.2).
j. The number of unit packs required for the intermediate container (see 5.1.1.1.2).
k. When palletization is required (see 5.3).

6.3 Data requirements. When this specification is used in an acquisition and data are required to be delivered, the data requirements shall be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the approved Contract Data Requirements List (CDRL) incorporated into the contract. When the provisions of DoD Federal Acquisition Regulations (FAR) Supplement, Part 27, Sub-Part 27.475-1 (DD Form 1423) are invoked and the DD Form 1423 is not used, the data should be delivered by the contractor in accordance with the contract or purchase order requirements.

6.4 First article. When a first article inspection is required, the item will be tested and should be a first production item or it may be a standard production item from the contractor’s current inventory as specified in 4.2.1. The first article should consist of one unit. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examination, test, and approval of the first article.

6.5 Sampling procedures.

6.5.1 Sampling for examination. Recommended inspection level is S-4 and AQL is 4.0 (see 4.3.1).

6.5.2 Sampling for tests. Recommended inspection level is S-2 and AQL is 1.5 (see 4.3.2).

6.6 UL requirements. Acceptable evidence of meeting the requirements of UL 514A and UL 514B shall be the UL certification symbol or label, listing in the UL Electrical Construction Materials List or a certified test report from a recognized independent testing laboratory indicating conformance to UL requirements.

6.7 Part or Identifying Number (PIN). The PIN to be used for items acquired to this specification is created as follows:

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WJ800F     XXXX   X   XX
   *        *     *   *---- Style
   *        *     *
   *        *     *-------- Size
   *        *
   *        *-------------- Type
   *
   *---------------------- Specification Number
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6.7.1 Styles, sizes and types. The styles, sizes and types (see 1.2) of junction boxes, extension rings and covers are identified by a numeric and alpha characters as shown in table I.

6.7.2 Part numbers. The PIN procedure is for Government purposes and does not constitute a requirement for the contractor.

6.8 Supersession data. This specification supersedes W-J-800E, dated 25 April 1984.

6.9 Subject term (key word) listing.

Electrical boxes
Metallic

MILITARY INTERESTS:

Military Coordinating Activity

Navy - YD

Custodians

Army - ME
Navy - YD
Air Force - 85

Review Activities

Air Force - 99
DLA - GS

User Activities

Army - CE, ER
Navy - SH

CIVIL AGENCY COORDINATING ACTIVITIES:

COM - DCG
Interior - BPA
GSA - PCD

PREPARING ACTIVITY:

Navy - YD

(Project 5975-1076)

Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein.

TABLE I. Types, sizes and styles of junction boxes, extension rings, and covers.

Type	Description		Size Inches	Style no.	Bottom 1/2 in.	Bottom 3/4 in.	Side knockouts 1/2 in.	Side knockouts 3/4 in.	Side knockouts 1 in.	Cable Box
I	Octagon junction box	A	3-1/4 x 1-1/2	2	1		4			
				3	1			4		
				4	1		2	2		
				5	1		2			4
		B	3-1/2 x 1-1/2	6	1		4			
				7	1		2			4
		C	4 x 1-1/2	8	1		2			4
				9	3	2		4		
				10	5		4			
				11	3	2	2	2		
				12	1		2			4
		D	4 x 2-1/8	13	3	2		4		
				14	5		4			
				15	3	2	2	2		
				16	3	2			4	
				17	1		2			4
				18	3	2	4			
II	Square junction box	A	4 x 1-1/2	2	5		12			
				3	1	4		8		
				4	3	2	8	4		
				5	3	2		8		4
				6	5		10			
		B	4 x 2-1/8	7	5		12			
				8	1	4		8		
				9	3	2	8	4		
				10	3	2			8	
				11	3	2		8		
				12	3	2	12			
				13	1		6			4
		C	4-11/16 x 1-1/2	14	3	2	12			
				15	1	4		10		
				16	3	2	8	4		
				17	3	2		10		
		D	4-11/16 x 2-1/8	18	3	2	12			
				19	3	2	8	4		
				20	3	2			8	
				21	3	2		4	4	
				22	3	2		8		
				23	3	2		12		
III	Junction box (nongangable)	A	4 x 2-1/8 x 1-1/2	2	3		8			
				3	1		2			
	Nongangable device box	B	4 x 2-1/8 x 1-7/8	4	3		8			
	Handy junction box (nongangable)	B	4 x 2-1/8 x 1-7/8	5		2		6		
				6	3			6		

TABLE I. Types, sizes and styles of junction boxes, extension rings, and covers. (continued)

Type	Description		Size Inches	Style no.	Bottom 1/2 in.	Bottom 3/4 in.	Side knockouts 1/2 in.	Side knockouts 3/4 in.	Side knockouts 1 in.	Cable Box
III	Nongangable device box	C	4 x 2-1/8 x 2-1/8	7	3		8			
				8		2		6		
IV	Device box sectional type (gangable)	A	3 x 2 x 2	2	2		6			
				3	1		6			
				4	1					4
		B	3 x 2 x 2-1/2	5	2		6			
				6	1		2			8
				7	2		4			
				8	1		2			4
	Lateral bracket			9	1		1			8
		C	3 x 2 x 2-3/4	10	2		6			
				11	1		6			4
	Device box sectional type gangable	C	3 x 2 x 2-1/4	12	1		2			4
				13	1		4			
				14		1		4		
				15	2		4	2		
		D	3 x 2 x 3-1/2	16	1		8			
				17	1			8		
				18	1		6	2		
				19	1		6			4
V	Octagon box	A	3-1/4 x 1-1/2	2			4			
	Extension ring	B	4 x 1-1/2	3			4			
				4				4		
				5			2	2		
		C	4 x 2-1/8	6			2	2		
VI	Square junction box extension ring	A	4 x 1-1/2	2			12			
				3				8		
				4			8	4		
		B	4 x 2-1/8	5			8	4		
				6					8	
		C	4-11/16 x 1-1/2	7			8	4		
		D	4-11/16 x 2-1/8	8			8	4		
				9					8	
VII	Handy junction box extension ring	A	4 x 2-1/8 x 1-1/2	2			8			
		B	4 x 2-1/8 x 1-7/8	3			8			
				4				6		

TABLE I. Types, sizes and styles of junction boxes, extension rings, and covers. (continued)

Type	Description		Size Inches	Style no.	Other description
VIII	Covers	A	3-1/4 inch Octagon box	2	Flat blank
				3	Flat with 1/2 inch knockout in center
		B	4 inch Octagon junction box	4	Flat blank
				5	Flat with 1/2 inch knockout in center
				6	Raised 5/8 inch with 1/2 inch knockout in center
				7	Raised 1/2 inch with 2-3/4 inch opening
				8	Raised 5/8 inch with 2-3/4 inch opening
				9	Raised 3/4 inch with 2-3/4 inch opening
				10	Raised 1 inch with 2-3/4 inch opening
				11	Raised 1-1/4 inches with 2-3/4 inch opening
				12	Raised 5/8 inch, center blanked for single device
				13	Flat center blanked for single device
				14	Flat, single receptacle 1-13/32 inch blanked hole
				15	Flat center blanked for duplex receptacle
		C	4-11/16 inch square junction box	16	Flat blank
				17	For 1 inch flush device
				18	Flat with 1/2 inch knockout in center
				19	Raised 1/2 inch, with 2-3/4 inch opening
				20	Raised 5/8 inch, with 2-3/4 inch opening
				21	Raised 3/4 inch, with 2-3/4 inch opening
				22	Raised 1 inch, with 2-3/4 inch opening
				23	Raised 1-1/4 inches, with 2-3/4 inch opening
		D	4 inch square junction box surface mounted	24	Raised 1/4 inch for toggle switch
				25	Raised 1/4 inch for duplex receptacle
				26	Raised 1/2 inch for toggle switch
				27	Raised 1/2 inch for single receptacle

TABLE I. Types, sizes and styles of junction boxes, extension rings, and covers. (continued)

Type	Description		Size Inches	Style no.	Other description
VIII	Covers	D	4 inch square junction box surface mounted	28	Raised 1/2 inch for duplex receptacle
				29	Raised 1/2 inch for two toggle switches
				30	Raised 1/2 inch for two duplex receptacles
				31	Raised 1/2 inch for toggle switch and single receptacle
				32	Raised 1/2 inch for toggle switch and duplex receptacle
				33	Raised 1/2 inch for three gangable device boxes
				34	Raised 1/2 inch for six gangable device boxes
				35	Raised 1/2 inch for 30-50 amp single receptacle
				36	Raised 1/2 inch for 30 amp twist lock single receptacle
				37	Raised 1/2 inch for 20 amp receptacle
				38	Raised 1/2 inch for 30-50-60 amp receptacle
		E	4 inch square junction box flush mounted	39	Flat blank
				40	Flat with 1/2 inch knockout in center
				41	Raised 1/2 inch with 2-3/4 inch opening
				42	Raised 5/8 inch with 2-3/4 inch opening
				43	Raised 3/4 inch with 2-3/4 inch opening
				44	Raised 1 inch with 2-3/4 inch opening
				45	Raised 1-1/4 inches with 2-3/4 inch opening
				46	Raised 1/4 inch for one flush device
				47	Raised 1/2 inch for one flush device
				48	Raised 1/2 inch for two flush devices
				49	Raised 5/8 inch for one flush device
				50	Raised 5/8 inch for two flush devices
				51	Raised 3/4 inch for one flush device

TABLE I. Types, sizes and styles of junction boxes, extension rings, and covers. (continued)

Type	Description		Size Inches	Style no.	Other description
VIII	Covers	E	4 inch square junction box flush mounted	52	Raised 3/4 inch for two flush devices
				53	Raised 1 inch for one flush device
				54	Raised 1 inch for two flush devices
				55	Raised 1-1/4 inches for one flush device
				56	Raised 1-1/4 inches for two flush devices
		F	Handy junction box	57	Blank cover
				58	For single receptacle
				59	For duplex receptacle
				60	For toggle switch
				61	Multiple wiring device

Type	Description		Size Inches	Style no.	Bottom 1/2 in.	Bottom 3/4 in.	Side knockouts 1/2 in.	Side knockouts 3/4 in.	Side knockouts 1 in.	Cable Box
IX	Device box welded type (nongangable)	A	3 x 2 x 2-1/2	2	2		6			
				3	1		2			4
		B	3 x 2-9/64 x 2-27/32	4	1		2			4