

INCH-POUND

MIL-C-55629B
 AMENDMENT 3
 29 June 1995
 SUPERSEDING
 AMENDMENT 2
 6 May 1986

MILITARY SPECIFICATION

CIRCUIT BREAKERS, MAGNETIC, UNSEALED OR PANEL SEAL, TRIP-FREE,
 GENERAL SPECIFICATION FOR

This amendment forms a part of MIL-C-55629B, dated 19 June 1981,
 and is approved for use by all Departments and Agencies of the
 Department of Defense.

PAGE 2

* 2.1, SPECIFICATIONS, FEDERAL, delete:

"QQ-P-416 - Plating, Cadmium (Electrodeposited).
 QQ-S-781 - Strapping, Steel, and Seals.
 QQ-Z-325 - Zinc Coating, Electrodeposited, Requirements for.
 PPP-B-636 - Boxes, Shipping, Fiberboard."

* 2.1, SPECIFICATIONS, MILITARY, delete "MIL-W-5085" and substitute "MIL-W-5086".

* 2.1, STANDARDS, MILITARY, delete:

"MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
 MIL-STD-794 - Parts and Equipment, Procedures for Packaging and Packing of.
 MIL-STD-1188 - Commercial Packaging of Supplies and Equipment.
 MIL-STD-45662 - Calibration Systems Requirements. "

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* 2.2, AMERICAN NATIONAL STANDARDS INSTITUTE, add:

"ANSI/NCSL Z540-1 - Calibration Laboratories and Measuring and Test Equipment - General
 Requirements. "

* 2.2, AMERICAN NATIONAL STANDARDS INSTITUTE, address, delete and substitute:

"(Application for copies should be addressed to the American National Standards Institute (ANSI), 11
 West 42nd Street, New York, NY 10036, Telephone (212) 642-4900, Fax (212) 302-1286.)"

* 2.2, Other publications, add:

"INTERNATIONAL ORGANIZATION FOR STANDARDS (ISO)

ISO 10012-1 - Quality assurance requirements for measuring equipment - Part 1: Metrological
 confirmation system for measuring equipment.

(Application for copies should be addressed to the American National Standards Institute (ANSI), 11
 West 42nd Street, New York, NY 10036, Telephone (212) 642-4900, Fax (212) 302-1286.)"

* 3.4.1, delete and substitute:

"3.4.1 Metals. Metals shall be of a corrosion-resistant type or shall be suitably plated or treated
 to resist corrosion (see 3.21). Cadmium and zinc platings shall not be used."

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- * 3.22, delete in its entirety.

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3.26.1d, delete "ANSI Y32.2-1967" and substitute "ANSI Y32.2-1975".

- * 4.1.1, delete and substitute:

"4.1.1 Test equipment and inspection facilities. The manufacturer shall establish and maintain a calibration system in accordance with ANSI/NCSL Z540-1, ISO 10012-1, or equivalent system as approved by the qualifying activity."

PAGE 8

- * TABLE I, applicable specification column, delete: "QQ-P-416 or QQ-Z-325".
- * 4.5.2, first sentence, delete "table II" and substitute "table II-1":

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- * TABLE II, title, delete and substitute:

"TABLE II-1. Qualification inspection."

- * TABLE II-1, group I, calibration, test method column; delete "4.8.5" and substitute "4.8.5.1".
- * TABLE II-1, group V, delete "Explosion (when specified)" in its entirety.
- * TABLE II-1, footnote 3, delete "or retention of qualification".

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4.5.2.1, delete in its entirety.

* 4.5.4.1 through 4.5.4.3 inclusive, delete in its entirety and substitute:

"4.5.4.1 Method. To retain qualification, the contractor shall forward a report at 12 month intervals to the qualifying activity. The qualifying activity shall establish the initial reporting date. The report shall consist of:

- a. A summary of the results of the tests performed for inspection of product for delivery (group A), indicating as a minimum the number of lots that have passed and the number that have failed, including the number and type of part failures. The results of tests of all reworked lots shall be identified and accounted for.
- b. A summary of the results of inspection performed for retention of qualification, including the number and mode of failures. The summary shall include results of all retention of qualification inspection tests performed and completed during the 12 month period. The inspection shall consist of the examinations and tests specified in table II-2 in the order shown. If the summary of the test results indicates nonconformance with specification requirements, and corrective action acceptable to the qualifying activity has not been taken, action may be taken to remove the failing product from the qualified products list.
- c. Contractors shall provide certification of current UL listing and an analysis of any discrepancy found during the UL follow-up service program affecting quality of product, or changes in design, construction, or materials.

Failure to submit the report within 30 days after the end of each 12 month period may result in loss of qualification for the product. In addition to the periodic submission of inspection data, the contractor shall immediately notify the qualifying activity at any time during the 12 month period that the inspection data indicates failure of the qualified product to meet the requirements of this specification.

In the event that no production occurred during the reporting period, a report shall be submitted certifying that the company still has the capabilities and facilities necessary to produce the item. If during two consecutive reporting periods there has been no production, the manufacturer may be required, at the discretion of the qualifying activity, to submit a representative product of the highest and lowest current rating covered by each major design set to testing in accordance with the qualification inspection requirements.

4.5.4.1.1 Failures. If one or more sample units fail to pass retention of qualification inspection, the sample shall be considered to have failed.

4.5.4.1.2 Disposition of sample units. Sample units which have been subjected to the inspections in table II-2 shall not be delivered on the contract or order."

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* Add the following new table after paragraph 4.5.4.1:

"TABLE II-2. Retention of qualification inspection.

Inspection <u>1/</u>	Military part number	Requirement paragraph	Test method paragraph	Number of samples
(1st Quarter)	M55629/2-001	3.1, 3.5, and	4.8.1 and 4.8.15	1
Shock and dimensions	M55629/1-128	3.19	"	1
"	M55629/4-001	"	"	1
"	M55629/3-128	"	"	1
"	M55629/6-001	"	"	1
"	M55629/5-128	"	"	1
"	M55629/20AL	"	"	1
"	M55629/7-114	"	"	1
"	M55629/21ALAL	"	"	1
"	M55629/9-114	"	"	1
"	M55629/22ALALAL	"	"	1
"	M55629/11-114	"	"	1
(2nd Quarter)	M55629/2-005	3.1, 3.5 and	4.8.1 and 4.8.12	1
Vibration and dimensions	M55629/1-132	3.16	"	1
"	M55629/4-005	"	"	1
"	M55629/3-132	"	"	1
"	M55629/6-005	"	"	1
"	M55629/5-132	"	"	1
"	M55629/20AP	"	"	1
"	M55629/7-118	"	"	1
"	M55629/21APAP	"	"	1
"	M55629/9-118	"	"	1
"	M55629/22APAPAP	"	"	1
"	M55629/11-118	"	"	1
(3rd Quarter)	M55629/2-003	3.1, 3.5, and	4.8.1 and 4.8.17	1
Salt spray and dimensions	M55629/1-130	3.21	"	1
"	M55629/4-003	"	"	1
"	M55629/3-130	"	"	1
"	M55629/6-003	"	"	1
"	M55629/5-130	"	"	1
"	M55629/20AM	"	"	1
"	M55629/7-116	"	"	1
"	M55629/21AMAM	"	"	1
"	M55629/9-116	"	"	1
"	M55629/22AMAMAM	"	"	1
"	M55629/11-116	"	"	1
(4th Quarter) <u>2/</u>	M55629/2-129	3.1, 3.5, 3.6,	4.8.1, 4.8.2, 4.8.13	2
"	M55629/4-129	3.17, and 3.18	and 4.8.14	2
"	M55629/6-129	"	"	2
"	M55629/8-115	"	"	1
"	M55629/10-115	"	"	1
"	M55629/12-115	"	"	1
"	M55629/20UM	"	"	1
"	M55629/21UMUM	"	"	1
"	M55629/22UMUMUM	"	"	1

1/ Dimensions taken shall be variables data.2/ Thermal shock and dimensions shall be performed the 4th quarter of the first year, solderability and dimensions shall be performed the 4th quarter of the second year, and moisture resistance and dimensions shall be performed the 4th quarter of the 3rd year. After the 3rd year, the sequence repeats. "

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- * 4.7.1.2.1, delete and substitute:

"4.7.1.2.1 Sampling plan. Group A inspection shall be on an inspection lot basis. Samples shall be selected in accordance with table III-1, based on the inspection lot. If there are one or more failures, the inspection lot shall be considered to have failed."

- * 4.7.1.2.3, delete and substitute:

"4.7.1.2.2 Rejected lots. The rejected lots shall be segregated from new lots and those lots which have passed inspection. The supplier may rework it to correct the defect or 100 percent inspect the lot and remove all defective parts. The rejected lot shall then be inspected in accordance with table III-1 for those quality characteristics found defective in the sample. If one or more defects are found in this second sample, the lot shall be rejected and shall not be supplied to this specification."

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- * TABLE III, delete and substitute:

"TABLE III. Group A inspection."

Inspection	Requirement paragraph	Test method paragraph
Marking	3.26 through 3.26.2	
Workmanship	3.27	
Dielectric withstanding voltage	3.7	4.8.3
Insulation resistance	3.8	4.8.4
Calibration (mounted in the vertical plane only)	3.9	4.8.5.2

- * After TABLE III, add TABLE III-1:

"TABLE III-1. Group A, zero defect sampling plan."

Lot size	Sample size
1 - 13	100 percent
14 - 150	13
151 - 280	20
281 - 500	29
501 - 1,200	34
1,201 - 3,200	42
3,201 - 10,000	50
10,001 - 35,000	60
35,001 - 150,000	74
150,001 - 500,000	90
500,001 and up	102

- * 4.7.1.2.4, delete "4.7.1.2.4" and substitute "4.7.1.2.3".
- * 4.7.2, delete in its entirety.

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- * 4.8.5.1a, delete and substitute:

"4.8.5.1 Method I (used for qualification inspection). Circuit breakers shall be mounted by their normal mounting means (see 3.5.5) and tested in the vertical mounting position. Circuit breakers shall be connected as shown on figure 1, with leads and terminals attached as specified. Tripping times shall then be measured when circuit breakers are subjected to the specified percentages (see 3.1) of applied rated current (ac or dc), except for 100 percent. The sample units shall be divided as evenly as possible (with respect to current rating and time delay) into three groups for testing at the following voltages and frequencies: 50 V dc, 240 V ac at 60 Hz, and 240 V ac at 400 Hz. There shall be sufficient time (not less than 10 minutes) between each application of current to permit proper cooling of the circuit breaker. Circuit breakers rated for high inrush (see 3.1) shall be subjected to a half wave of a 60 Hz waveform for 60 Hz devices and a half wave of a 400 Hz or 60 Hz waveform for dc and 400 Hz devices. The peak value of the half wave shall be as specified, see 3.1. Normally, tests shall be conducted within the rated operating voltage (see 3.5.12). However, if the inherent resistance or impedance of the circuit breaker precludes attainment of the required percentages of overload current at the rated operating voltage, for the purpose of determining tripping times and high inrush capabilities, the voltage shall be increased as necessary, up to a maximum of 40 percent. If the specified overload current cannot be obtained with a maximum increase in voltage of 40 percent, tests of these particular overload levels shall be omitted with qualification activity approval. Each section of multipole breakers shall be subjected to the calibration current specified, with remaining pole or poles passing no current."

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- * 4.8.5.1b, delete in its entirety.

- * 4.8.5.2, delete and substitute:

"4.8.5.2 Method II (used for group A inspection, high-temperature and low-temperature operation, endurance, moisture resistance, trip-free calibration, and interrupting capacity). Circuit breakers shall be tested as specified in 4.8.5.1, except that only 125 percent and/or 150 percent (as specified), and 200 percent of rated current shall be applied, and the applied voltage should be at a level sufficient to maintain the specified percent of rated current during testing."

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- * 4.8.8, first sentence, delete "4.8.5.1" and substitute "4.8.5.2".

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- * 4.8.13.g(2), delete "(see 4.8.5.1)" and substitute "(see 4.8.5.2)".

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- * 4.8.18, delete in its entirety.

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- * 5. through 5.4.3.4 inclusive, delete in its entirety and substitute:

5. PACKAGING

5.1 Packaging. The requirements for packaging shall be in accordance with the contract or purchase order (see 6.2)."

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- * 6.2.1, delete 6.2.1c through 6.2.1f, and substitute:
"c. Requirements for packaging (see 5.1)."
- * 6.2.2, delete 6.2.2g through 6.2.2j, and substitute:
"g. Requirements for packaging (see 5.1)."

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- * 6.2.3, delete 6.2.3w through 6.2.3z, and substitute:
"w. Requirements for packaging (see 5.1)."

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20.1, after the third paragraph, add the following new paragraph:

"(Tripping time delay T.) When qualification already exists for characteristics K through S, two circuit breakers shall be submitted for qualification to characteristic T. They shall consist of one in the minimum and one in the maximum current rating. The sample units shall be of the greatest number of poles for which qualification is sought. Circuit breakers qualified with auxiliary contacts will convey qualification to specification sheets without auxiliary contacts. Tests to be conducted are calibration and high and low temperature. No failures will be allowed."

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- * 20.2, first sentence, delete "table II" and substitute "table II-1".

The margins of this amendment are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous amendment were made. This was done as a convenience only and Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous amendment.

CONCLUDING MATERIAL

Custodians:
Army - ER
Navy - EC
Air Force - 85

Review activities:
Army - AR, AV, ME, MI
Navy - AS, MC, OS
Air Force - 17, 19, 99
DLA - ES

Preparing activity:
Army - ER

Agent:
DLA - ES

(Project 5925-0243)