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PROPOSED, NEW AND REVISED STANDARDS

ISS Page 22
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TO ALL REPRESENTATIVES OF MEMBER COMPANIES
IN THE INDUSTRIAL CONTROL AND SYSTEMS SECTION

Subject: Reaffirmation of the NEMA Standard Publication for *Maintenance of Motor Controllers after a Fault Condition*, NEMA Pub. No. **ICS 2.2-1983 (R1988)**

Dear Representative:

At its November 17, 1988 meeting, the Codes and Standards Committee reaffirmed the subject publication.

Attached are a new title page and foreword that reflect this reaffirmation. Please insert the attached revised pages in their proper place in the publication and remove the pages they replace.

Sincerely,

Krystyna A. McIver
Standards Publications Editor

Encl: title and foreword pages for ICS 2.2-1983
cc: all known holders of ICS 2.2-1983

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NEMA ICS 2.2-1983 (R 1988)

ICS 2.2

MAINTENANCE OF MOTOR CONTROLLERS AFTER A FAULT CONDITION

Published by

National Electrical Manufacturers Association
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Foreword

User input has been considered throughout the development of this Standards Publication.

Proposed or recommended revisions to this Standards Publication are welcomed and should be submitted to:

Manager, Engineering Department
National Electrical Manufacturers Association
2101 L Street, N.W.
Washington, D.C. 20037

To continue to serve the best interests of users of Industrial Control and Systems equipment, the Industrial Control and Systems Section is actively cooperating with other standardization organizations in the development of simple and more universal metrology practices. In this publication, the U.S. customary units are gradually being supplemented by those of the modernized metric system known as the International Systems of Units (SI). This transition involves no changes in standard dimensions, tolerances, or performance specifications.

These standards are quoted from Part ICS 2-302 of the NEMA Standards Publication for *Industrial Control Devices, Controllers and Assemblies,* Publication No. ICS 2-1988.

Publication No. ICS 2.2-1983 (R1988) reaffirms Publication No. ICS 2.2-1983 and supersedes the NEMA Standards Publication for *Maintenance of Motor Controllers After a Fault Condition,* Publication No. ICS 2.2-1979. The text contained in Publication No. ICS 2.2-1983 (R1988) is a direct excerpt of Part ICS 2-302 of the NEMA Standards Publication for *Industrial Control Devices, Controllers and Assemblies*, Publication No. ICS 2-1988. The standards of ICS 2.2 were reaffirmed in November of 1988.

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Scope

Part ICS 2-302 covers the procedures to be followed in order to return to service a motor controller which has been subjected to a short circuit or a ground fault. These procedures are not intended to cover other elements of the branch circuit, such as wiring and motors, which may also require attention.

The definitions and standards of NEMA Standards Publication No. ICS 1 also apply to this part.

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Part ICS 2-302

MAINTENANCE OF MOTOR CONTROLLERS AFTER A FAULT CONDITION

GENERAL

ICS 2-302.01 INTRODUCTION

In a motor branch circuit which has been properly installed, coordinated and in service prior to the fault, opening of the branch-circuit short-circuit protective device (fuse, circuit breaker, motor short circuit protector, etc.) indicates a fault condition in excess of operating overload. This fault condition must be corrected and the necessary repairs or replacements made before reenergizing the branch circuit.

It is recommended that the following general procedures be observed by qualified personnel in the inspection and repair of the motor controller involved in the fault. Manufacturers' service instructions should also be consulted for additional details.

Authorized Engineering Information 1-5-1977.

PROCEDURES

CAUTION—IT MUST BE UNDERSTOOD THAT ALL INSPECTIONS AND TESTS ARE TO BE MADE ON CONTROLLERS AND EQUIPMENT WHICH ARE DEENERGIZED, DISCONNECTED AND ISOLATED SO THAT ACCIDENTAL CONTACT CANNOT BE MADE WITH LIVE PARTS AND SO THAT ALL PLANT SAFETY PROCEDURES WILL BE OBSERVED.

ICS 2-302.02 ENCLOSURE

Substantial damage to the enclosure such as deformation, displacement of parts or burning, requires replacement of the entire controller.

Authorized Engineering Information 1-5-1977.

ICS 2-302.03 DISCONNECT DEVICES

.01 Circuit Breakers

Examine the enclosure interior and the circuit breaker for evidence of possible damage. If evidence of damage is not apparent, the breaker may be reset and turned "ON." If it is suspected that the circuit breaker has opened several short-circuit faults or if signs of possible deterioration appear within the enclosure, the test described in par. AB 1-2.38 of the NEMA Standards Publication for *Molded Case Circuit Breakers*, Publication No. AB 1, should be performed before restoring the breaker to service.

.02 Disconnect Switch

The external operating handle must be capable of opening the switch. If the handle fails to open the switch or if visual inspection after opening indicates deterioration beyond normal wear and tear, such as overheating, contact blade or jaw pitting, insulation breakage or charring, the switch must be replaced.

.03 Fuse Holders

Deterioration of fuse holders or their insulating mounts requires their replacement.

Authorized Engineering Information 1-5-1977.

ICS 2-302.04 TERMINALS AND INTERNAL CONDUCTORS

Indications of arcing damage or overheating, or both, such as discoloration and melting of insulation require the replacement of damaging parts.

Authorized Engineering Information 1-5-1977.

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ICS 2-302.05 MOTOR STARTER

.01 Contactor

Contacts showing heat damage, displacement of metal, or loss of adequate wear allowance require replacement of the contacts and, where applicable, the contact springs. If deterioration extends beyond the contacts, such as binding in the guides or evidence of insulation damage, the damaged parts of the entire contactor must be replaced.

.02 Overload Relays

(a) If burnout of the current element of an overload relay has occurred, the complete overload relay must be replaced. Any indication that an arc has struck and/or any indication of burning of the insulation of the overload relay also requires replacement of the overload relay.

(b) If there is no visual indication of damage that would require replacement of the overload relay, the relay must be electrically or mechanically tripped to verify the proper functioning of the overload relay contact(s).

Authorized Engineering Information 1-5-1977.

ICS 2-302.06 RETURN TO SERVICE

Before returning the controller to service, checks must be made for the tightness of electrical connections and for the absence of short circuits, grounds and leakage.

All equipment enclosures must be closed and secured before the branch circuit is energized.

Authorized Engineering Information 1-5-1977.

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September 1984

NEMA STANDARDIZATION

The purpose of NEMA Standards, their classification and status are set forth in certain clauses of the NEMA Bylaws, which are quoted below:

Purpose of Standards

National Electrical Manufacturers Association Standards are adopted in the public interest and are designed to eliminate misunderstandings between the manufacturer and the purchaser and to assist the purchaser in selecting and obtaining the proper product for its particular need. Existence of a National Electrical Manufacturers Association Standard does not in any respect preclude any member or nonmember from manufacturing or selling products not conforming to the standard.

(Bylaw—Art. V, Sec. 1)

Definition of a Standard

A standard of the National Electrical Manufacturers Association defines a product, process or procedure with reference to one or more of the following: nomenclature, composition, construction, dimensions, tolerances, safety, operating characteristics, performance, rating, testing, and the service for which they are designed.

(Bylaw—Art. V, Sec. 2, Subsection A)

Dimensions

Where dimensions are given for interchangeability purposes, alternate dimensions satisfying the other provisions of the standards publication may be capable of otherwise equivalent performance.

(NEMA Policy Memorandum 84-2, dated June 7, 1984)

Classes of Standards

National Electrical Manufacturers Association Standards are of two classes:

1. NEMA Standard, which relates to a product commercially standardized and subject to repetitive manufacture, which standard has been approved by at least 90 percent of the members of the Subdivision eligible to vote thereon;
2. Suggested Standard for Future Design, which may not have been regularly applied to a commercial product, but which suggests a sound engineering approach to future development, which standard has been approved by at least two-thirds of the members of the Subdivision eligible to vote thereon.

(Bylaw—Art. V, Sec. 2, Subsection B)

Authorized Engineering Information

Authorized Engineering Information consists of explanatory data and other engineering information of an informative character not falling within the classification of NEMA Standard or Suggested Standard for Future Design.

(Bylaw—Art. V, Sec. 6, 1st Sentence)

Official Standards Proposal

An Official Standards Proposal is an official draft of a proposed standard which is formally recommended to an outside organization(s) for consideration, comment and/or approval.

(Bylaw—Art. V, Sec. 4, Subsection A)

Identification of Status

Standards in NEMA Standards Publications are identified in the foreword or following each standard as "NEMA Standard" or "Suggested Standard for Future Design." These indicate the status of the standard. These words are followed by a date which indicates when the standard was adopted in its present form by the Association.

The material identified as "Authorized Engineering Information" and "Official Standards Proposal" is designated similarly.

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