Second Revision No. 4-NFPA 79-2023 [Section No. 3.3.60]

3.3.60* Identified (as applied to equipment).

Recognizable as suitable for the specific purpose, function, use, environment, application, and so forth, where described in a particular code or standard requirement. [**70,** 2023]

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 12:01:26 EDT 2023

Committee Statement

Committee Statement: NFPA 79 is a “standard” not a “code”. The term “or standard” has been added and the reference to the NEC has been maintained as it is permitted to deviate from the NEC under the NFPA extract policy.

Response Message: SR-4-NFPA 79-2023

Public Comment No. 17-NFPA 79-2023 [Section No. 3.3.60]

Second Revision No. 14-NFPA 79-2023 [Section No. 3.3.61]

3.3.62* Industrial Control Panel.

An assembly of two or more components consisting of one of the following: (1) power circuit components only, such as motor controllers, overload relays, fused disconnecting means, and circuit breakers; (2) control circuit components only, such as pushbuttons, pilot lights, selector switches, timers, switches, and control relays; (3) a combination of power and control circuit components. These components, with associated wiring and terminals, are mounted on, or contained within, an enclosure or mounted on a subpanel. [~~**70,** 2023~~]

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 15:20:43 EDT 2023

Committee Statement

Committee Statement: To comply with 2.6.1 of the NFPA Manual of Style for extracted text, the reference brackets are removed since the language no longer reflects exact text from the 2023 NEC.

Response Message: SR-14-NFPA 79-2023

Public Comment No. 3-NFPA 79-2022 [Section No. 3.3.61]

Second Revision No. 15-NFPA 79-2023 [Section No. 3.3.66]

3.3.61* In Sight From (Within Sight From~~,~~) (Within Sight).

~~Where this code specifies that one equipment shall be "in sight from," "within sight from," or "within sight of" another equipment, the specified equipment shall be~~ Equipment that is visible and not more than 15 m (50 ft) distant from the other equipment is *in sight from* that other equipment . [**70,** 2023]

A.3.3.61 In Sight From (Within Sight From) (Within Sight).

See 110.29 of *NFPA 70* for additional information.

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 15:23:16 EDT 2023

Committee Statement

Committee Statement: The text is revised to the exact 2023 NEC language to comply with 2.6.1 of the NFPA Manual of Style for extracted text.

The revision to Annex A comes from the definition in the 2023 NEC and is added for clarity and to correlate with the NEC.

Response Message: SR-15-NFPA 79-2023

Public Comment No. 4-NFPA 79-2022 [Section No. 3.3.66]

Second Revision No. 16-NFPA 79-2023 [Section No. 3.3.71.2]

3.3.71.2 Location, Wet (Wet Location).

A location that is one or more of the following: (1) unprotected and exposed to weather, (2) subject to saturation with water or other liquids, (3) underground, and (4) in concrete slabs or masonry in direct contact with the earth. [~~**70,** 2023~~]

Supplemental Information

File Name	Description	Approved
PC-5_Section_3-20-2023_3.3.71.2.docx	See attached WORD document for changes to Section 3.3.71.2.	

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 16:01:16 EDT 2023

Committee Statement

Committee Statement: The text is revised for clarity and grammar, the reference NFPA 70 is removed to comply with 2.6.1 of the NFPA manual of style for extracted text.

Response Message: SR-16-NFPA 79-2023

Public Comment No. 5-NFPA 79-2022 [Section No. 3.3.71.2]

Second Revision No. 17-NFPA 79-2023 [Section No. 3.3.79]

3.3.79 Overcurrent Protective Device, Branch-Circuit (Branch-Circuit Overcurrent Protective Device).

A device capable of providing protection for service, feeder, and branch circuits and equipment over the full range of overcurrents between its rated current and its interrupting rating. ~~Such devices are provided with interrupting ratings appropriate for the intended use but no less than 5000 amperes.~~ [**70,** 2023]

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 16:06:17 EDT 2023

Committee Statement

Committee Statement: The text is revised to the exact 2023 NEC language to comply with 2.6.1 of the NFPA Manual of Style for extracted text..

Response Message: SR-17-NFPA 79-2023

Public Comment No. 1-NFPA 79-2022 [Section No. 3.3.79]

Public Comment No. 6-NFPA 79-2022 [Section No. 3.3.79]

Second Revision No. 21-NFPA 79-2023 [Section No. 3.3.109]

3.3.109 Tap Conductors .

A conductor, other than a service conductor, that has overcurrent protection ahead of its point of supply that exceeds the value permitted for similar conductors that are protected as described elsewhere in this standard.

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 17:00:54 EDT 2023

Committee Statement

Committee Statement: The term conductor(s) in the title to the section was changed to conductor to align editorially with the definition.

Response Message: SR-21-NFPA 79-2023

Second Revision No. 2-NFPA 79-2023 [New Section after 4.9]

4.10* Cybersecurity.

Industrial machinery that is connected to a communication network and permitted to control any part of the machinery shall be permitted to comply with the following:

(1) A cybersecurity assessment conducted on the connected system to determine vulnerabilities to cyberattacks

(2) A cybersecurity commissioning certification conducted on the connected system to ensure it is designed against cyberattacks and known vulnerabilities

(3) Documentation of the assessment and certification provided to those authorized to inspect, operate, and maintain the system

A.4.10

The ANSI/ISA 62443 series of cybersecurity standards can be utilized to meet the assessment requirement. Other options include the NIST *Framework for Improving Critical Infrastructure Cybersecurity* , Version 1.1; UL 2900-2-3, *Software Cybersecurity for Network-Connectable Products, Part 2-3: Particular Requirements for Security and Life Safety Signaling Systems* ; and ISO/TR 22100-4, *Safety of machinery — Relationship with ISO 12100 — Part 4: Guidance to machinery manufacturers for consideration of related IT-security (cyber security) aspects* .

Examples of the commissioning certification include the following:

(1) The ISA Security Compliance Institute (ISCI) conformity assessment program

(2) A certification of compliance by a nationally recognized test laboratory

(3) Manufacturer certification for the specific type and brand of system provided

Supplemental Information

File Name	Description	Approved
PC-10_NEW_SECTION_AFTER_4.9_03-20-2023.docx	New Section 4.10 and annex material per WORD document.	

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 10:46:08 EDT 2023

Committee Statement

Committee Statement: The concerns about cybersecurity and how these attacks can affect the safety of industrial machinery and the facilities in which they are utilized need to have a methodology that can be used. This new language provides for solutions to meet cybersecurity protection verification which may be desired.

Response Message: SR-2-NFPA 79-2023

Public Comment No. 10-NFPA 79-2022 [New Section after 4.9]

Second Revision No. 5-NFPA 79-2023 [Sections 5.1.9.2, 5.1.9.3]

5.1.9.2*

Each machine supply circuit disconnecting means shall be legibly marked ~~to indicate the equipment it disconnects~~ as “Machine Supply Circuit Disconnecting Means” on or adjacent to the device and indicate the equipment it disconnects .

~~**5.1.9.3**~~

~~A machine supply circuit disconnecting means shall be marked as “Machine Supply Circuit Disconnecting Means” on or adjacent to the device.~~

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 12:10:40 EDT 2023

Committee Statement

Committee Statement: The text has been revised to combine the requirements for marking the machine supply circuit disconnecting means and the equipment that it supplies.

Response Message: SR-5-NFPA 79-2023

Public Comment No. 20-NFPA 79-2023 [Sections 5.1.9.2, 5.1.9.3]

Second Revision No. 6-NFPA 79-2023 [Section No. 5.1.9.4]

5.1.9.3

Where a machine is supplied by more than one supply circuit, a marking shall be ~~installed at~~ applied or affixed on or adjacent to each machine supply circuit disconnecting means ~~location~~ denoting the location of all the other machine supply circuit disconnecting means.

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 12:28:14 EDT 2023

Committee Statement

Committee Statement: The wording was changed for consistency with NEC Section 110.21(A)(1) and other requirements in this document.

Response Message: SR-6-NFPA 79-2023

Public Comment No. 21-NFPA 79-2023 [Section No. 5.1.9.4]

Second Revision No. 7-NFPA 79-2023 [Section No. 5.1.13.4]

5.1.13.4

Where the excepted circuits are not disconnected by the machine supply circuit disconnecting means, all of the following requirements shall be met:

(1) A permanent safety sign(s) ~~shall be placed~~ is located adjacent to the machine supply circuit disconnecting means operating handle(s) indicating that it does not de-energize all the exposed live parts when it is in the open (off) position as in 16.2.4.

(2) A statement containing the information from 16.2.4~~shall be~~ is included in the machine documentation.

(3) A permanent safety sign ~~shall be placed~~ is located on a nonremovable part inside the control enclosure in proximity to each excepted circuit ~~and~~ or ~~shall be~~ each excepted circuit is identified by color as defined in 13.2.4.

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 12:41:40 EDT 2023

Committee Statement

Committee Statement: The requirements have been revised to indicate that either a permanent safety sign or identified by color are acceptable methods to identify excepted circuits.

Response Message: SR-7-NFPA 79-2023

Public Comment No. 11-NFPA 79-2023 [Section No. 5.1.13.4]

Second Revision No. 8-NFPA 79-2023 [Section No. 6.2.3.1]

6.2.3.1* Enclosure Access.

Opening an enclosure (e.g., door, lid, cover) that contains live parts operating at or greater than 50 volts ac rms or 60 volts dc shall be permitted only under one or more of the following conditions:

(1) The use of a key or tool is necessary for access to live parts operating at or above 50 volts rms ac or 60 volts dc.

(2) ~~All the live parts mounted on the inside of doors or covers are protected from unintentional direct contact by the inherent design of components or the application of barriers or obstacles such that a 50 mm (2 in.) sphere cannot contact them.~~ The disconnecting means supplying the enclosure is interlocked with the enclosure door(s) in accordance with 6.2.3.2 .

(3) ~~The disconnecting means supplying the enclosure is interlocked with the enclosure door(s) in accordance with 6.2.3.2 .~~ All the live parts inside that are operating at or greater than 50 volts ac rms or 60 volts dc, including those mounted on the inside surface of doors or covers, are separately enclosed or guarded from direct contact by the inherent design of components or the application of barriers or obstacles such that a 12.5 mm (½ in.) jointed test finger, as shown in Figure 6.2.3 , cannot contact them.

6.2.3.1.1

~~Opening an enclosure without the use of a key or tool and without disconnecting the live parts shall be permitted only when all the live parts inside that are operating at or greater than 50 volts ac rms or 60 volts dc are separately enclosed or guarded from direct contact by the inherent design of components or the application of barriers or obstacles such that a 12.5 mm (½ in) jointed test finger, as shown in Figure 6.2.3 , cannot contact them.~~ Where enclosure access requirements are provided under 6.2.3.1(1) or 6.2.3.1(2) , all live parts mounted on the inside surface of doors or covers shall be protected from unintentional direct contact by the inherent design of components or the application of barriers or obstacles such that a 50 mm (2 in.) sphere cannot contact them.

6.2.3.1.2

A safety sign shall be provided on enclosures in accordance with 16.2.4.

Supplemental Information

File Name	Description	Approved
TG-4_3-20-2023_PC-22_6.2.3.1_MSM_-_Copy.docx	See attached WORD doc for changes to 6.2.3.1	

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 13:12:08 EDT 2023

Committee Statement

Committee Statement:	The revised text clarifies the permitted options for enclosure access by moving 6.2.3.1.1 to a new list item 6.2.3.1(3) and clarifying the requirements for protection of live parts mounted to the inside surface of doors and covers.
Response Message:	SR-8-NFPA 79-2023

Public Comment No. 22-NFPA 79-2023 [Section No. 6.2.3.1]

Second Revision No. 1-NFPA 79-2023 [Section No. 7.2.10.1]

7.2.10.1*

Each motor controller and its associated wiring shall be protected as an individual branch circuit by a motor branch-circuit short-circuit and ground-fault protective device as specified by the controller manufacturer. The maximum rating shall be as shown in Table 7.2.10.1 or in accordance with 7.2.10.1 through 7.2.10.5 .

Exception No. 1: Table 7.2.10.1 shall not apply to Design B energy efficient motor circuits. The provisions of NFPA 70 shall be observed for Design B energy efficient motor circuits.

Exception No. 2: Where the controller is power conversion equipment that is listed and marked "Suitable for Output Motor Conductor Protection," the maximum rating of the designated motor branch-circuit short-circuit and ground-fault protective device shall be permitted to be determined by replacing the full-load current in Table 7.2.10.1 with the power conversion equipment's rated input current. The selected rating shall not exceed the rating marked on the adjustable speed drive or in the manufacturer's instructions.

Table 7.2.10.1 Maximum Rating or Setting of Motor Branch-Circuit Short-Circuit and Ground-Fault Protective Devices

-	Full-Load Current (%)		
Fuse Class with Non–Time Delay	AC-2	AC-3	AC-4
R	300	300	300
CF or J	300	300	300
CC	300	300	300
T	300	300	300
	Type of Application [a]		
Fuse Class with Time Delay [b]	AC-2	AC-3	AC-4
RK-5 [c]	150	175	175
RK-1	150	175	175
CF or J	150	175	225
CC	150	300	300
Instantaneous trip circuit breaker [d]	800	800	800
Inverse time circuit breaker [e]	150	250	250

Note: Where the values determined by this table do not correspond to the standard sizes or ratings, the next higher standard size, rating, or possible setting shall be permitted. Where a non-adjustable inverse time circuit breaker is used and the next higher standard ampere rating is less than 15 amperes, an ampere rating of 15 amperes shall be permitted.

[a] Types of starting duty are as follows:

(1) AC-2: All light-starting duty motors, including slip-ring motors; starting, switching off

(2) AC-3: All medium starting duty motors including squirrel-cage motors; starting, switching off while running, occasional inching, jogging, or plugging but not to exceed 5 operations per minute or 10 operations per 10 minutes and all wye-delta and two-step autotransformer starting motors

(3) AC-4: All heavy starting duty motors including squirrel-cage motors; starting, plugging, inching, jogging

[b] Where the rating of a time-delay fuse (other than CC type) specified by the table is not sufficient for the starting of the motor, it shall be permitted to be increased but shall in no case be permitted to exceed 225 percent. The rating of a time-delay Class CC fuse and non–time-delay Class CC, J, CF, or T fuse shall be permitted to be increased but shall in no case exceed 400 percent of the full-load current.

[c] Unless a motor controller is listed for use with RK-5 fuses, Class RK-5 fuses shall be used

~~only with NEMA-rated motor controllers.~~

~~d Instantaneous trip circuit breakers shall be permitted to be used only if they comply with all of the following:~~

~~(1) They are adjustable.~~

~~(2) Part of the combination controller has motor-running protection, short-circuit protection, and ground-fault protection in each conductor.~~

~~(3) The combination is especially identified for use.~~

~~(4) It is installed per any instructions included in its listing or labeling.~~

~~(5) They are limited to single motor applications; circuit breakers with adjustable trip settings are to be set at the controller manufacturer's recommendation, but not greater than 1300 percent of the motor full-load current.~~

~~e Where the rating of an inverse time circuit breaker specified in this table is not sufficient for the starting current of the motor, it shall be permitted to be increased but in no case exceed 400 percent for full-load currents of 100 amperes or less or 300 percent for full-load currents greater than 100 amperes.~~

7.2.10.1.1

The maximum rating shall be as shown in Table 7.2.10.1.1 or in accordance with 7.2.10.1 through 7.2.10.5.

Table 7.2.10.1.1 Maximum Rating or Setting of Motor Branch-Circuit Short-Circuit and Ground-Fault Protective Devices

-	Full-Load Current (%)		
Fuse Class with Non-Time Delay	AC-2	AC-3	AC-4
R	300	300	300
CF or J	300	300	300
CC	300	300	300
T	300	300	300
	Type of Application[a] *		
Fuse Class with Time Delay[b]	AC-2	AC-3	AC-4
RK-5[c]	150	175	175
RK-1	150	175	175
CF or J	150	175	225
CC	150	300	300
Instantaneous trip circuit breaker[d]	800	800	800
Inverse time circuit breaker[e]	150	250	250

~~a~~ * Types of starting duty are as follows:

(1) AC-2: All light-starting duty motors, including slip-ring motors; starting, switching off

(2) AC-3: All medium- starting duty motors including squirrel-cage motors; starting, switching off while running, occasional inching, jogging, or plugging but not to exceed 5 operations per minute or 10 operations per 10 minutes; and all wye-delta and two-step autotransformer starting motors

(3) AC-4: All heavy- starting duty motors including squirrel-cage motors; starting, plugging, inching, jogging

7.2.10.1.2

Table 7.2.10.1.1 shall not apply to Design B energy efficient motor circuits.

7.2.10.1.2.1

The provisions of *NFPA 70* shall be observed for Design B energy efficient motor circuits.

7.2.10.1.3

Where the controller is power conversion equipment that is listed and marked “Suitable for Output Motor Conductor Protection,” the maximum rating of the designated motor branch-circuit short-circuit and ground-fault protective device shall be permitted to be determined by replacing the full-load current in Table 7.2.10.1.1 with the power conversion equipment’s rated input current.

7.2.10.1.3.1

The selected rating shall not exceed the rating marked on the adjustable speed drive or in the manufacturer’s instructions.

7.2.10.1.4

Where the values determined by this table do not correspond to the standard sizes or ratings, the next higher standard size, rating, or possible setting shall be permitted.

7.2.10.1.4.1

Where a nonadjustable inverse time circuit breaker is used and the next higher standard ampere rating is less than 15 amperes, an ampere rating of 15 amperes shall be permitted.

7.2.10.1.5

Where the rating of a time-delay fuse (other than CC type) specified by the table is not sufficient for the starting of the motor, it shall be permitted to be increased but shall in no case be permitted to exceed 225 percent.

7.2.10.1.5.1

The rating of a time-delay Class CC fuse and non-time-delay Class CC, J, CF, or T fuse shall be permitted to be increased but shall in no case exceed 400 percent of the full-load current.

7.2.10.1.6

Unless a motor controller is listed for use with RK-5 fuses, Class RK-5 fuses shall be used only with NEMA-rated motor controllers.

7.2.10.1.7

Instantaneous trip circuit breakers shall be permitted to be used only if they comply with all of the following:

(1) They are adjustable.

(2) Part of the combination controller has motor-running protection, short-circuit protection, and ground-fault protection in each conductor.

(3) The combination is especially identified for use.

(4) They are installed per any instructions included in their listing or labeling.

(5) They are limited to single motor applications; circuit breakers with adjustable trip settings are to be set at the controller manufacturer's recommendation, but not greater than 1300 percent of the motor full-load current.

7.2.10.1.8

Where the rating of an inverse time circuit breaker specified in this table is not sufficient for the starting current of the motor, it shall be permitted to be increased but in no case exceed 400 percent for full-load currents of 100 amperes or less or 300 percent for full-load currents greater than 100 amperes.

7.2.10.1.9

A listed self-protected combination controller shall be permitted in lieu of the devices specified in Table 7.2.10.1.1 for branch-circuit short-circuit ground fault and overload protection of a single motor circuit.

7.2.10.1.10

Where a listed self-protected combination controller has an adjustable, instantaneous trip setting, the setting shall not exceed 1300 percent of full-load motor current for other than Design B energy efficient motors and not more than 1700 percent of full-load motor current for Design B energy efficient motors.

7.2.10.1.11

Semiconductor fuses intended for the protection of electronic devices shall be permitted in lieu of the devices specified in Table 7.2.10.1.1 for power electronic devices, associated electromechanical devices (such as bypass contactors and isolation contactors), and conductors in a solid-state motor controller system, if the marking for replacement fuses is provided adjacent to the fuses.

7.2.10.1.12

Circuits containing power conversion equipment shall be protected by a motor branch-circuit short-circuit and ground-fault protective device selected in accordance with 7.2.10.1, 7.2.10.1.9, 7.2.10.1.11, or 19.1.1.

7.2.10.1.13

If maximum ratings are stipulated for specific device types in the manufacturer's instructions for the power conversion equipment or are otherwise marked on the equipment, they shall not be exceeded even if higher values are permitted by 7.2.10.1.

7.2.10.1.14

A self-protected combination motor controller, semiconductor fuses or an instantaneous trip circuit breaker shall only be permitted if specifically identified in the manufacturer’s instructions for the power conversion equipment or if otherwise marked on the equipment.

7.2.10.1.15

If an instantaneous-trip circuit breaker or semiconductor fuses are permitted in accordance with the power conversion equipment manufacturer’s instructions for use as the motor branch-circuit short-circuit and ground-fault protective device for listed power conversion equipment, they shall be provided as an integral part of a single listed assembly incorporating both the protective device and power conversion equipment.

7.2.10.1.16

Motor branch-circuit short-circuit and ground-fault protection shall also be provided for a bypass circuit/device(s).

7.2.10.1.17

Where a single motor branch-circuit short-circuit and ground-fault protective device is provided for circuits containing both power conversion equipment and a bypass circuit, the motor branch-circuit short-circuit and ground-fault protective device type and its rating or setting shall be in accordance with those determined for the power conversion equipment and for the bypass circuit/device(s) equipment.

Supplemental Information

File Name	Description	Approved
79-2021_Table_7.2.10.1_v1_KC_edits_1_.docx	Section 7.2.10.1 and Table 7.2.10.1 editorial actions	

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Tue Jan 31 14:13:35 EST 2023

Committee Statement

Committee Statement: Revise Section and Table as shown in attachment WORD document.

Revision is editorial in nature only and in accordance with MOS, no new material.

Response Message: SR-1-NFPA 79-2023

Second Revision No. 18-NFPA 79-2023 [Section No. 7.8.1]

7.8.1* Surge-Protective Devices (SPDs).

Industrial machinery with safety circuits shall have SPD(s) to protect against the effects of overvoltages due to ~~hazardous~~ transients or switching surges. The type of SPD(s) shall be selected to protect, at a minimum, the safety circuit devices and shall be permitted to be integral to secondary derived voltage sources.

Exception: SPD(s) shall not be required where the risks associated with the effects of overvoltages are mitigated such that the safety performance determined by a risk assessment is met.

7.8.1.1

The type of SPD(s) shall be selected to protect, at a minimum, the safety circuit devices.

7.8.1.2

The type of SPD(s) shall be permitted to be integral to secondary derived voltage sources.

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 16:10:23 EDT 2023

Committee Statement

Committee Statement: The term “hazardous” is removed to comply with 2.2.2 Unenforceable Terms in the NFPA Manual of Style.

Response Message: SR-18-NFPA 79-2023

Public Comment No. 23-NFPA 79-2023 [Section No. 7.8.1]

Public Comment No. 7-NFPA 79-2022 [Section No. 7.8.1]

Second Revision No. 9-NFPA 79-2023 [Section No. 12.6.1.1]

12.6.1.1

16 AWG shall be permitted ~~if~~ where individual conductors are used in a cabinet or enclosure or where part of a jacketed multiconductor cable assembly or flexible cord~~, or part of individual conductors used in a cabinet or enclosure~~ under the following conditions:

(1) In non-motor power circuits of 8 amperes or less, provided all the following conditions are met:

(a) The circuit is protected in accordance with Chapter 7.

(b) Overcurrent protection does not exceed 10 amperes.

(c) Overcurrent protection is provided by one of the following:

i. A listed molded-case circuit breaker marked for use with 16 AWG conductors

ii. Listed fuses marked for use with 16 AWG conductors

iii. Class CC, Class J, Class CF, or Class T fuses

(2) In motor power circuits supplying a motor having a full-load current rating of 8 amperes or less, provided all the following conditions are met:

(a) The circuit is protected in accordance with Chapter 7.

(b) The circuit is provided with Class 10 overload protection.

(c) Overcurrent protection is provided by one of the following:

i. A listed molded-case circuit breaker marked for use with 16 AWG conductors

ii. Listed fuses marked for use with 16 AWG conductors

iii. Class CC, Class J, Class CF, or Class T fuses

(3) In motor power circuits supplying a motor having a full-load current rating of 5.5 amperes or less, provided all the following conditions are met:

(a) The circuit is protected in accordance with Chapter 7.

(b) The circuit is provided with Class 20 overload protection.

(c) Overcurrent protection is provided by one of the following:

i. A listed molded-case circuit breaker marked for use with 16 AWG conductors

ii. Listed fuses marked for use with 16 AWG conductors

iii. Class CC, Class J, Class CF, or Class T fuses

Supplemental Information

File Name	Description	Approved
TG4_12.6.1.1_3-20-2023_.docx	SEE attached WORD doc for changes to 12.6.1.1.	

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 14:11:16 EDT 2023

Committee Statement

Committee Statement:	The language has been revised to clarify that jacketed multiconductor cable assembly or flexible cord is not required to be used in a cabinet or enclosure.
Response Message:	SR-9-NFPA 79-2023

Public Comment No. 25-NFPA 79-2023 [Section No. 12.6.1.1]

Second Revision No. 10-NFPA 79-2023 [Section No. 12.6.1.2]

12.6.1.2

18 AWG shall be permitted ~~if~~ where individual conductors are used in a cabinet or enclosure or where part of a jacketed multiconductor cable assembly or flexible cord ~~or part of individual conductors used in a cabinet or enclosure,~~ under the following conditions:

(1) In non-motor power circuits of 5.6 amperes or less, provided all the following conditions are met:

(a) The circuit is protected in accordance with Chapter 7.

(b) Overcurrent protection does not exceed 7 amperes.

(c) Overcurrent protection is provided by one of the following:

i. A listed molded-case circuit breaker marked for use with 18 AWG conductors

ii. Listed fuses marked for use with 18 AWG conductors

iii. Class CC, Class J, or Class CF, Class T fuses

(2) In motor power circuits supplying a motor having a full-load current rating of 5 amperes or less, provided all the following conditions are met:

(a) The circuit is protected in accordance with Chapter 7.

(b) The circuit is provided with Class 10 overload protection.

(c) Overcurrent protection is provided by one of the following:

i. A listed molded-case circuit breaker marked for use with 18 AWG conductors

ii. Listed fuses marked for use with 18 AWG conductors

iii. Class CC, Class J, Class CF, or Class T fuses

(3) In motor power circuits supplying a motor having a full-load current rating of 3.5 amperes or less, provided all the following are met:

(a) The circuit is protected in accordance with Chapter 7.

(b) The circuit is provided with Class 20 overload protection.

(c) Overcurrent protection is provided by one of the following:

i. A listed molded-case circuit breaker marked for use with 18 AWG conductors

ii. Listed fuses marked for use with 18 AWG conductors

iii. Class CC, Class J, Class CF, or Class T fuses

Supplemental Information

File Name	Description	Approved
TG4_12.6.1.2_3-20-3023_.doc	See attached WORD document for changes to 12.6.1.2.	

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 14:18:22 EDT 2023

Committee Statement

Committee Statement:	The language has been revised to clarify that jacketed multiconductor cable assembly or flexible cord is not required to be used in a cabinet or enclosure..
Response Message:	SR-10-NFPA 79-2023

Public Comment No. 26-NFPA 79-2023 [Section No. 12.6.1.2]

Second Revision No. 11-NFPA 79-2023 [Section No. 12.6.1.4]

12.6.1.4

16 AWG and 18 AWG conductors shall be permitted ~~if~~ where individual conductors are used in a cabinet or enclosure or where part of a jacketed multiconductor cable assembly or flexible cord ~~or part of individual conductors used in a cabinet or enclosure~~ under the following conditions:

(1) The conductors are supplied by power conversion equipment that is listed and marked “Suitable for Output Motor Conductor Protection.”

(2) The power conversion equipment is marked suitable for protecting the size of the conductor used.

Supplemental Information

File Name	Description	Approved
TG4_12.6.1.4_3-20-2023_.doc	See attachment WORD document for changes to Section 12.6.1.4.	

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 14:23:16 EDT 2023

Committee Statement

Committee Statement: The language has been revised to clarify that jacketed multiconductor cable assembly or flexible cord is not required to be used in a cabinet or enclosure.

Response Message: SR-11-NFPA 79-2023

Public Comment No. 27-NFPA 79-2023 [Section No. 12.6.1.4]

Second Revision No. 12-NFPA 79-2023 [Section No. 13.2.4.1]

13.2.4.1*

Ungrounded conductors that remain energized shall be identified with the following:

(1) The color ORANGE shall be used to identify ungrounded ac conductors that remain energized when the main supply circuit disconnecting means is in the off position. This color identification shall be strictly reserved for this application only.

(2) The color ORANGE with BLUE stripe shall be used to identify ungrounded dc conductors that remain energized when the main supply circuit disconnecting means is in the off position. This color identification shall be strictly reserved for this application only.

Exception No. 1: Internal wiring on individual devices purchased completely wired

Exception No. 2: Where the insulation used is not available in the colors required (e.g., high temperature insulation, chemically resistant insulation)

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 14:25:31 EDT 2023

Committee Statement

Committee Statement: The revision clarifies that “This color identification shall be strictly reserved for this application only.” applies for both conditions (1) and (2).

Response Message: SR-12-NFPA 79-2023

Public Comment No. 28-NFPA 79-2023 [Section No. 13.2.4.1]

Second Revision No. 19-NFPA 79-2023 [Section No. A.3.3.39]

A.3.3.39 Enclosure.

~~See Table 110.28 in *NFPA 70*~~ See Annex F for examples of enclosure types. [~~**70,** 2023~~]

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 16:20:04 EDT 2023

Committee Statement

Committee Statement: Annex F provides detailed information on enclosures and enclosure types. When practicable the user should be able to obtain referenced information within the same document. To comply with 2.6.1 of the NFPA Manual of Style for extracted text, the reference brackets are removed since the language no longer reflects exact text from the 2023 NEC.

Response Message: SR-19-NFPA 79-2023

Public Comment No. 14-NFPA 79-2023 [Section No. A.3.3.39]

Public Comment No. 2-NFPA 79-2022 [Section No. A.3.3.39]

Second Revision No. 13-NFPA 79-2023 [Section No. A.3.3.56]

A.3.3.56 Grounding Conductor, Equipment (EGC) (Equipment Grounding Conductor).

It is recognized that the equipment grounding conductor also performs bonding. ~~See 250.118 of *NFPA 70* for a list of acceptable equipment grounding conductors~~ See 8.2 for equipment grounding conductor and bonding jumper requirements . [~~**70,** 2023~~]

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 14:27:30 EDT 2023

Committee Statement

Committee Statement: The Annex note was revised to point users of the Standard to 8.2 of NFPA 79 which recognizes grounding methods not included in NEC 250.118.

Response Message: SR-13-NFPA 79-2023

Public Comment No. 15-NFPA 79-2023 [Section No. A.3.3.56]

Second Revision No. 3-NFPA 79-2023 [Section No. D.1]

D.1

Figure D.1(a) through Figure D.1(q) are not intended to be design guidelines. They are included only to illustrate documentation methods.

Figure D.1(a) Cover Sheet and Sheet Index.

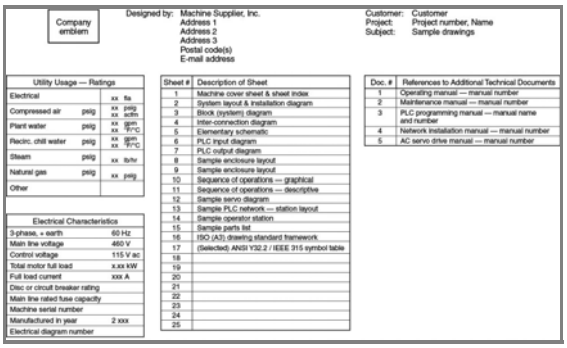


Figure D.1(b) System Layout and Installation Diagram.

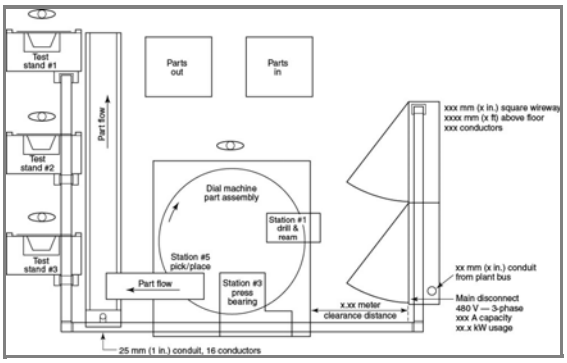


Figure D.1(c) Block (System) Diagram.

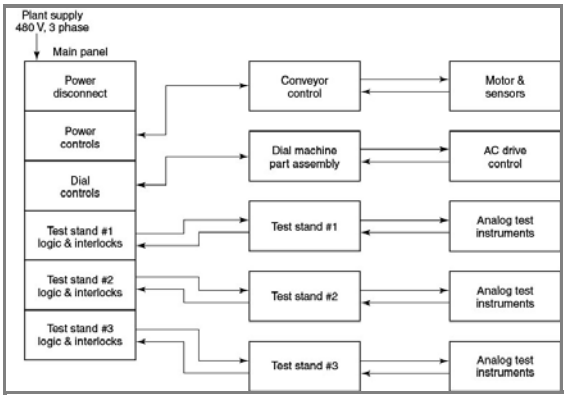


Figure D.1(d) Interconnection Diagram.

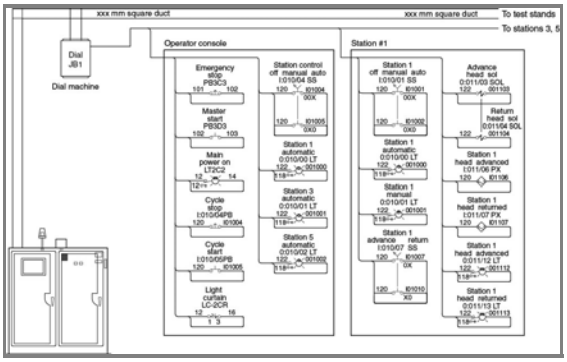


Figure D.1(e) Elementary Schematic.

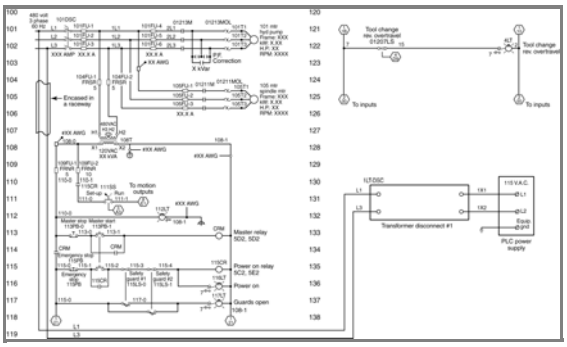
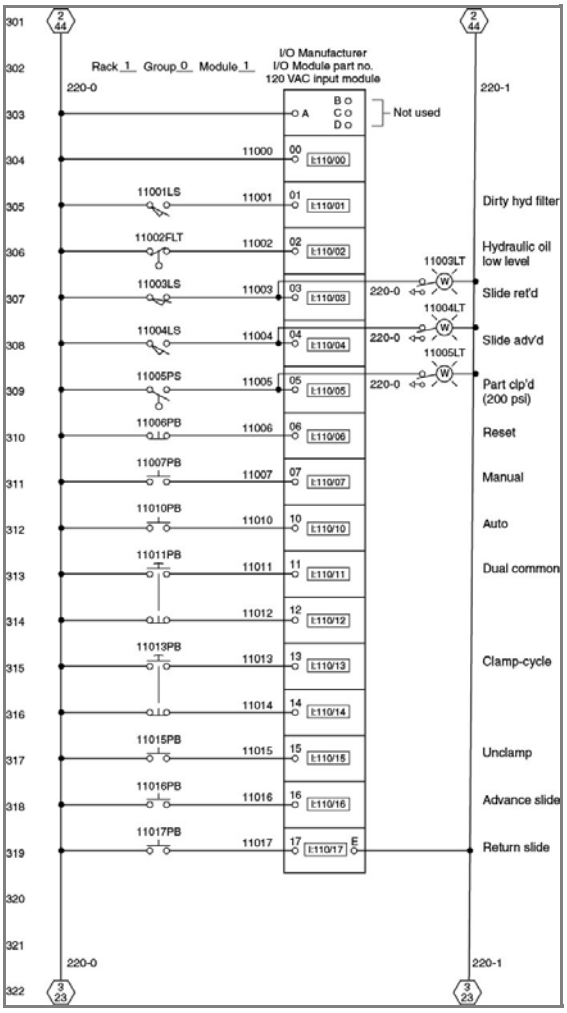


Figure D.1(f) PLC Input Diagram.



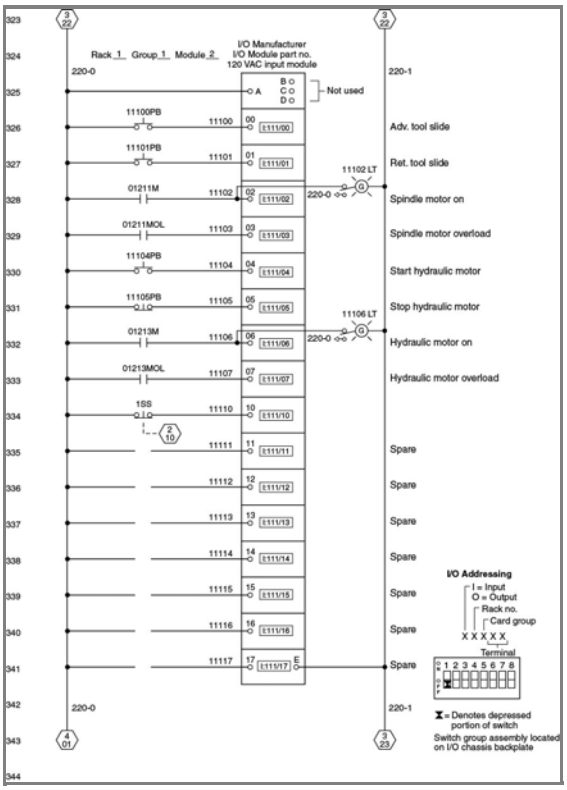
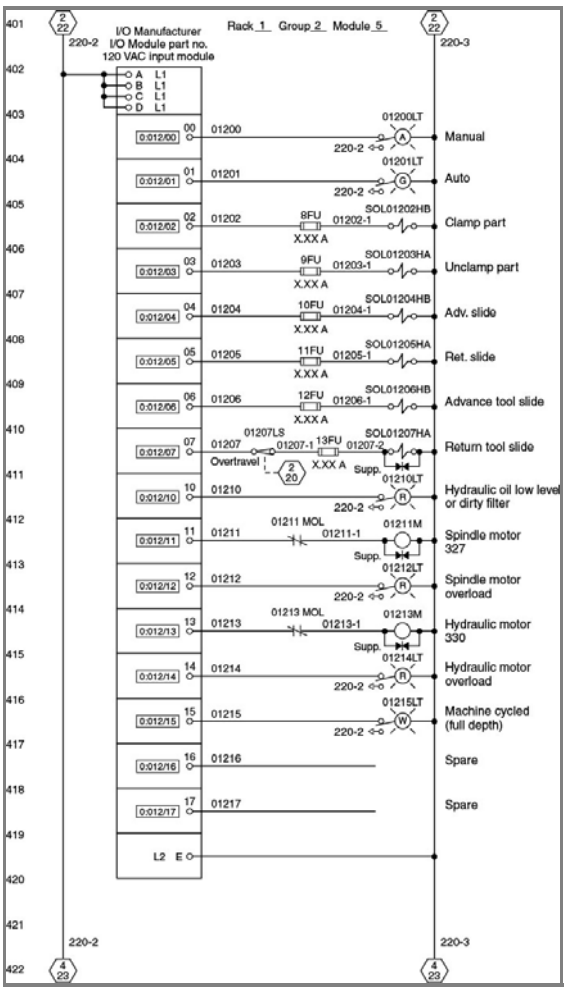


Figure D.1(g) PLC Output Diagram.



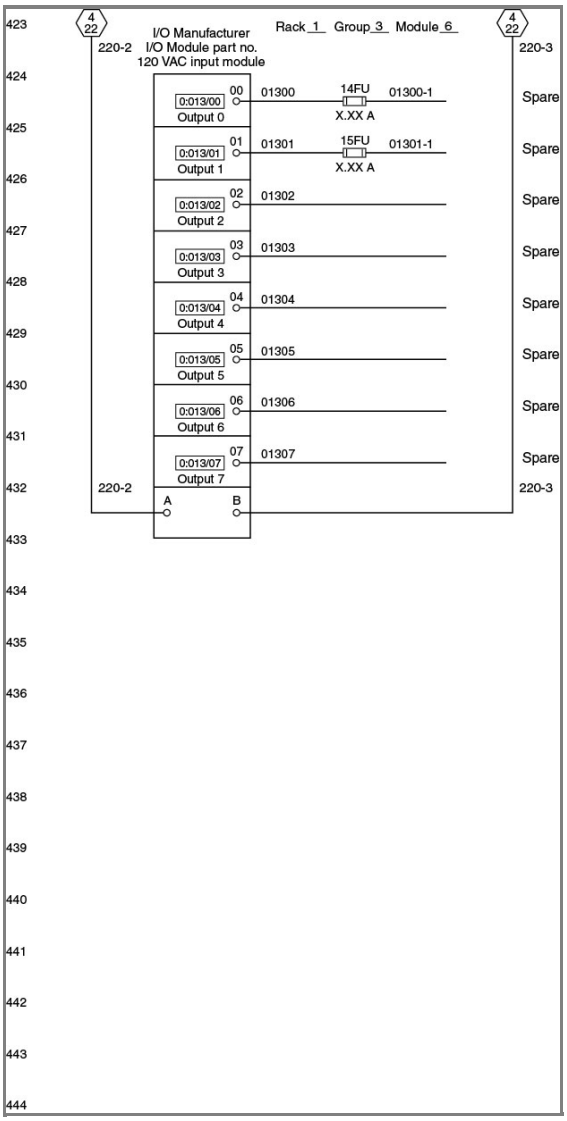


Figure D.1(h) Sample Enclosure Layout — Interior.

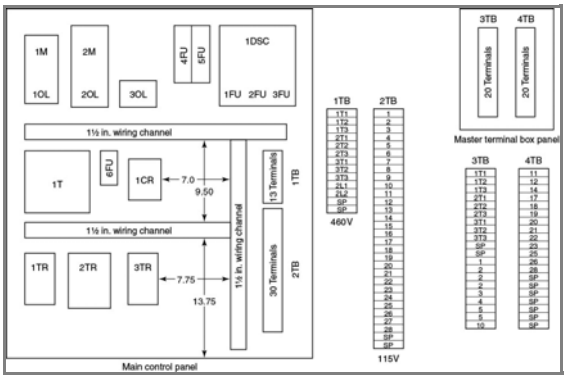


Figure D.1(i) Sample Enclosure Layout — Exterior.

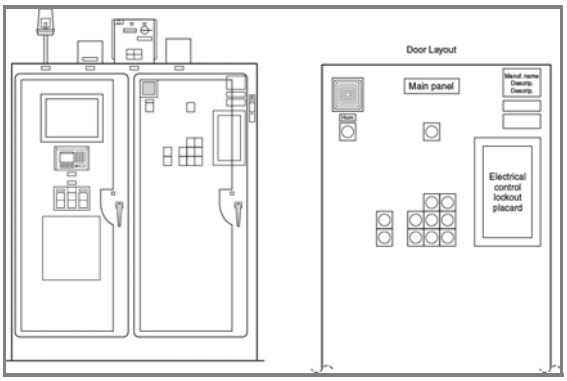
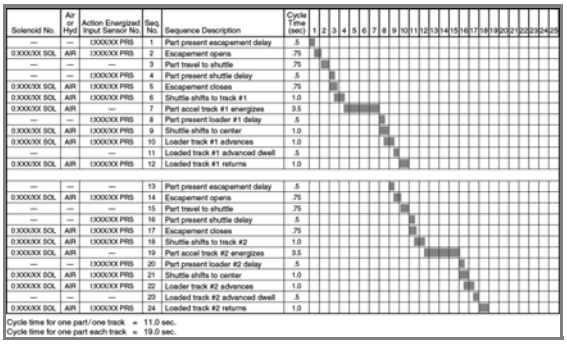


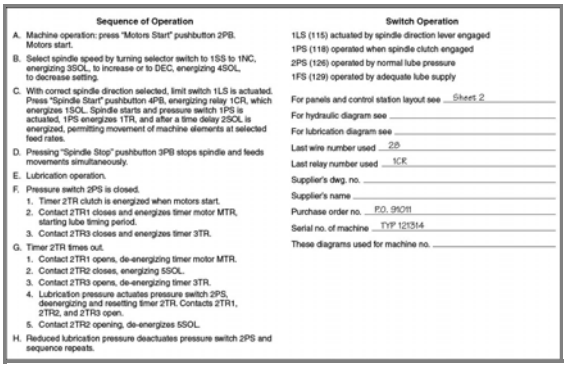
Figure D.1(j) Sequence of Operations — Graphical.



Solenoid No.	Air or Hyd	Action Energized Input Sensor No.	Seq. No.	Sequence Description	Cycle Time (sec)
—	—	I.XXX/XX PRS	1	Part present escapement delay	.5
0.XXX/XX SOL	AIR	I.XXX/XX PRS	2	Escapement opens	.75
—	—	—	3	Part travel to shuttle	.75
—	—	I.XXX/XX PRS	4	Part present shuttle delay	.5
0.XXX/XX SOL	AIR	I.XXX/XX PRS	5	Escapement closes	.75
0.XXX/XX SOL	AIR	I.XXX/XX PRS	6	Shuttle shifts to track #1	1.0
0.XXX/XX SOL	AIR	—	7	Part accel track #1 energizes	3.5
—	—	I.XXX/XX PRS	8	Part present loader #1 delay	.5
0.XXX/XX SOL	AIR	I.XXX/XX PRS	9	Shuttle shifts to center	1.0
0.XXX/XX SOL	AIR	I.XXX/XX PRS	10	Loader track #1 advances	1.0
—	—	—	11	Loaded track #1 advanced dwell	.5
0.XXX/XX SOL	AIR	I.XXX/XX PRS	12	Loaded track #1 returns	1.0
—	—	—	13	Part present escapement delay	.5
0.XXX/XX SOL	AIR	I.XXX/XX PRS	14	Escapement opens	.75
—	—	—	15	Part travel to shuttle	.75
—	—	I.XXX/XX PRS	16	Part present shuttle delay	.5
0.XXX/XX SOL	AIR	I.XXX/XX PRS	17	Escapement closes	.75
0.XXX/XX SOL	AIR	I.XXX/XX PRS	18	Shuttle shifts to track #2	1.0
0.XXX/XX SOL	AIR	—	19	Part accel track #2 energizes	3.5
—	—	I.XXX/XX PRS	20	Part present loader #2 delay	.5
0.XXX/XX SOL	AIR	I.XXX/XX PRS	21	Shuttle shifts to center	1.0
0.XXX/XX SOL	AIR	I.XXX/XX PRS	22	Loader track #2 advances	1.0
—	—	—	23	Loaded track #2 advanced dwell	.5
0.XXX/XX SOL	AIR	I.XXX/XX PRS	24	Loaded track #2 returns	1.0

Cycle time for one part/one track = 11.0 sec.
Cycle time for one part each track = 19.0 sec.

Figure D.1(k) Sequence of Operations — Descriptive Graphical.



Sequence of Operation

A. Machine operation: press "Motors Start" pushbutton 2PB. Motors start.
B. Select spindle speed by turning selector switch to 1SS to 1NC, energizing 3SOL, to increase or to DEC, energizing 4SOL, to decrease setting.
C. With correct spindle direction selected, limit switch 1LS is actuated. Press "Spindle Start" pushbutton 4PB, energizing relay 1CR, which energizes 1SOL. Spindle starts and pressure switch 1PS is actuated, 1PS energizes 1TR, and after a time delay 2SOL is energized, permitting movement of machine elements at selected feed rates.
D. Pressing "Spindle Stop" pushbutton 3PB stops spindle and feeds movements simultaneously.
E. Lubrication operation.
F. Pressure switch 2PS is closed.
   1. Timer 2TR clutch is energized when motors start.
   2. Contact 2TR1 closes and energizes timer motor MTR, starting lube timing period.
   3. Contact 2TR3 closes and energizes timer 3TR.
G. Timer 2TR times out.
   1. Contact 2TR1 opens, de-energizing timer motor MTR.
   2. Contact 2TR2 closes, energizing 5SOL.
   3. Contact 2TR3 opens, de-energizing timer 3TR.
   4. Lubrication pressure actuates pressure switch 2PS, deenergizing and resetting timer 2TR. Contacts 2TR1, 2TR2, and 2TR3 open.
   5. Contact 2TR2 opening, de-energizes 5SOL.
H. Reduced lubrication pressure deactuates pressure switch 2PS and sequence repeats.

Switch Operation

1LS (115) actuated by spindle direction lever engaged
1PS (118) operated when spindle clutch engaged
2PS (126) operated by normal lube pressure
1FS (129) operated by adequate lube supply

For panels and control station layout see Sheet 2
For hydraulic diagram see
For lubrication diagram see
Last wire number used 28
Last relay number used 1CR
Supplier's dwg. no.
Supplier's name
Purchase order no. P.O. 99011
Serial no. of machine TYP 121314
These diagrams used for machine no.

Figure D.1(l) Sample Servo Diagram.

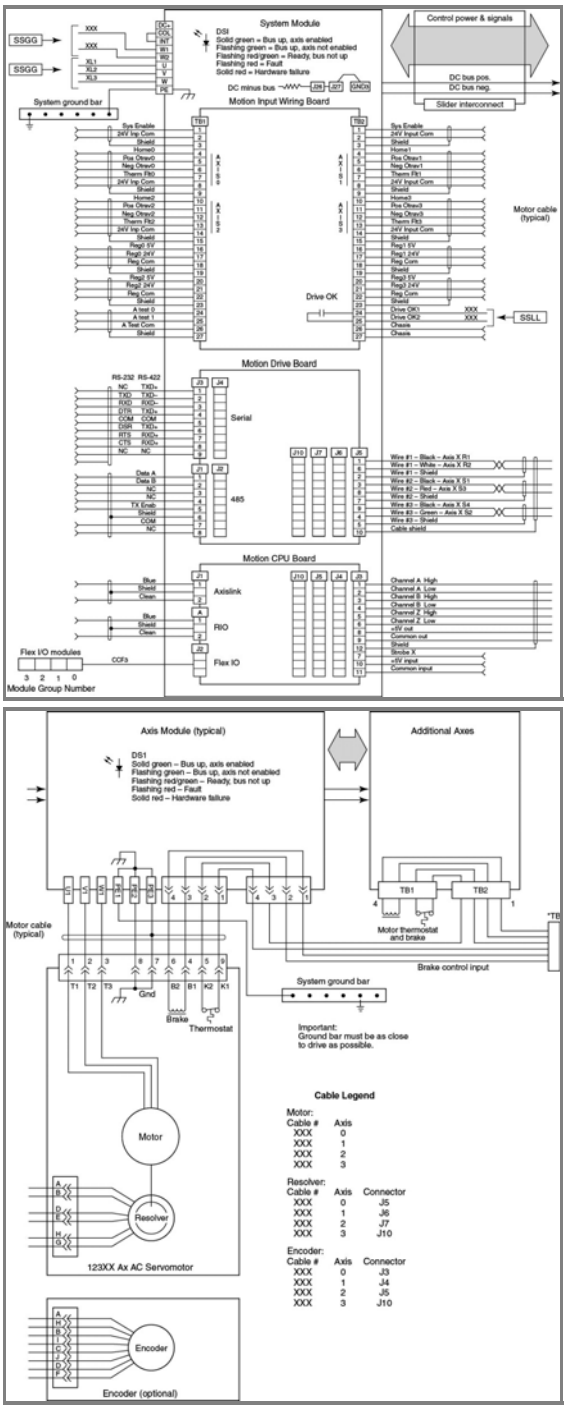


Figure D.1(m) Sample PLC Network — Station Layout.

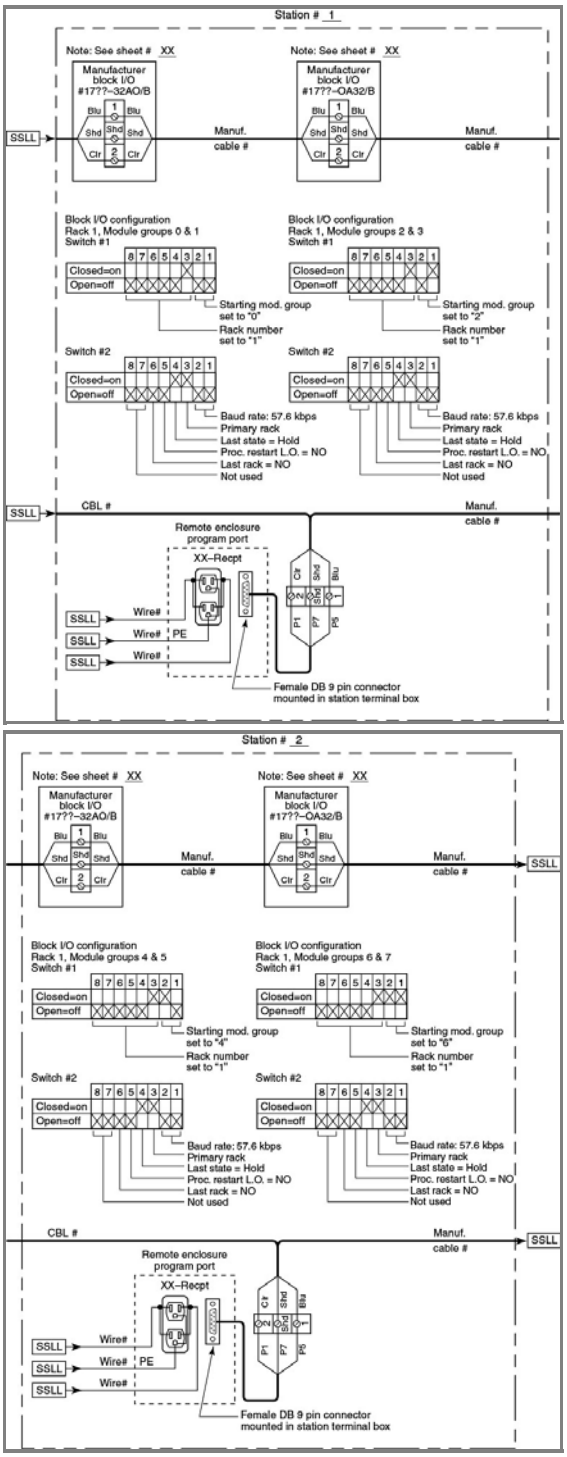


Figure D.1(n) Sample Operator Station.

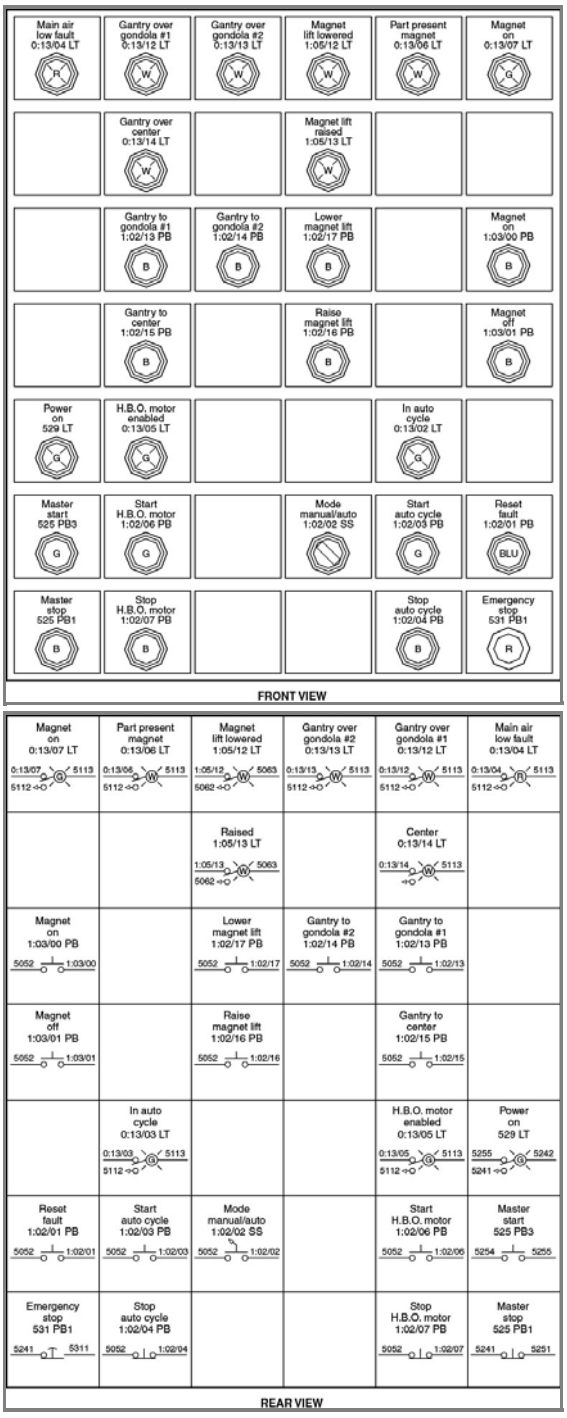


Figure D.1(o) Sample Parts List.

Parts List						
Detail	Qty.	Identifier	Location	Manufacturer	Part Number	Description
0001	1	Enclosure	—	Supplier name	A–72X7318LP	2-door enclosure, 72.12X73.12X18.12
0002	1	Panel 1	—	Supplier name	A–72P72	72X72 sub-panel
0003	1	206M	Panel	Supplier name	5KE200LBIG3522	Motor, 22KW, 1200 RPM, Fr. 200L, B3 mount
0004	1	1PWRPLG	—	Supplier name	GE–0100–60	Bus fuse — Fusible, 100A, 600V
0005	1	204CB	—	Supplier name	SELA36AT0060	3 pole/100A circuit breaker, SE100 frame
0006	1	206M	—	Supplier name	CL06A311MJ	FVNR contactor, 30HP/460V, 48.0A, 120VAC coil
0007	1	211LTDSC	—	Supplier name	TF1000–JFB	Lighting disconnecting means, 1000VA, 480/120V enclosed
0008	12	XXFU	—	Supplier name	Type AGT	Fuse, 600V, XX AMP
0009	2	SQ2A3, SQ2B3	Machine	Supplier name	301AEP115	Proximity switch, 115VAC, 3 pin

Figure D.1(p) ISO (A2) Drawing Standard Framework.

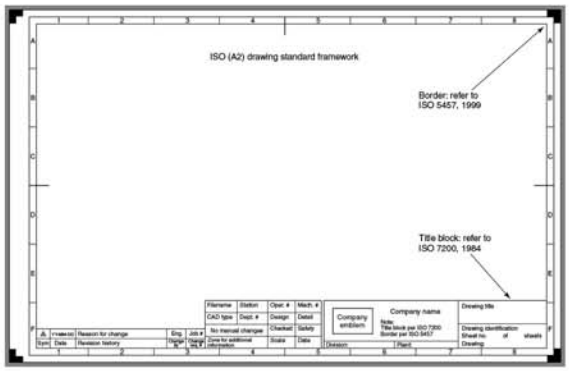


Figure D.1(q) Selections from ANSI Y32.2/IEEE 315 Symbol Table.

ANSI Symbol	ANSI Code	IEC 60617 Symbol	IEC 81346-2 Code	Description
	CON		KM	Contactor contact open
	CON		KM	Contactor contact closed
	CR		KA	Relay contact open
	CR		KA	Relay contact closed
	TR		KT	Timed contact, N.O. – on delay (TDE)
	TR		KT	Timed contact, N.C. – on delay (TDE)
	TR		KT	Timed contact, N.C. – off delay (TDD)
	TR		KT	Timed contact, N.O. – off delay (TDD)
	SS		SA	Selector switch
	PB		SB	Pushbutton N.O.
	PB		SB	Pushbutton N.C.
	PB		SB	Pushbutton mushroom head
	FL		SL	Liquid level switch
	FLS		SF	Flow switch
	PS		SP	Pressure switch
	TS		ST	Temperature switch
	LS		SQ	Limit switch
	PRS		SQ	Proximity switch
A	LT		HL	Indicating light
C	CR		KA	Control relay coil
C	CON		KM	Contactor coil
M	M		KM	Motor starter coil
TR	TR		KA	Timer coil
SOL	SOL		YV	Solenoid coil
CTR	CTR		EC	Electromechanical counter
	CB		QF	Circuit breaker
	TT		XT XT	Terminals (reference) Fused terminals (reference)
	FU		FU	Fuse, protective

ANSI Symbol	ANSI Code	IEC 60617 Symbol	Note 1 Code	Description
	CON		KM	Contactor contact open
	CON		KM	Contactor contact closed
	CR		KA	Relay contact open
	CR		KA	Relay contact closed
	TR		KT	Timed contact, N.O. – on delay (TDE)
	TR		KT	Timed contact, N.C. – on delay (TDE)
	TR		KT	Timed contact, N.C.– off delay (TDD)
	TR		KT	Timed contact, N.O. – off delay (TDD)
	SS		SA	Selector switch
	PB		SB	Pushbutton N.O.
	PB		SB	Pushbutton N.C.
	PB		SB	Pushbutton mushroom head
	FL		SL	Liquid level switch
	FLS		SF	Flow switch
	PS		SP	Pressure switch
	TS		ST	Temperature switch
	LS		SQ	Limit switch
	PRS		SQ	Proximity switch
	LT		HL	Indicating light
	CR		KA	Control relay coil
	CON		KM	Contactor coil
	M		KM	Motor starter coil
	TR		KA	Timer coil
	SOL		YV	Solenoid coil
	CTR		EC	Electromechanical counter
	CB		QF	Circuit breaker
	T1		X1 XT	Terminals (reference) Fused terminals (reference)
	FU		FU	Fuse, protective

Note 1: For acronyms related to the IEC standards, refer to either ANSI Y32.2/IEEE 315 or IEC 81346-2.

Supplemental Information

File Name	Description	Approved
NFPA_79_TG2_D.1_q_3-20-2023_.docx	See attached WORD document for changes to D.1(q)	

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 11:47:10 EDT 2023

Committee Statement

Committee Statement: D.1(q) was changed due to the withdrawal of IEC 60617 and some symbols were not aligned with IEEE 315. Despite acronyms not being in alignment with IEC 81346-2 they have been used for many years and still reflect the IEEE 315 symbols.

Response Message: SR-3-NFPA 79-2023

Second Revision No. 20-NFPA 79-2023 [Section No. J.2]

J.2 *NFPA 70* Terms.

Bonded (Bonding). Connected to establish electrical continuity and conductivity. [**70,** 2023]

Discussion. Bonding is accomplished if items are connected together regardless of whether or not there is a connection to ground (earth).

Bonding Conductor (Bonding Jumper). A conductor that ensures the required electrical conductivity between metal parts that are required to be electrically connected. [**70,** 2023]

Discussion. Bonding conductor sizes are provided in the specific requirements related to what the bonding is intended to accomplish such as being suitable for fault current or minimizing voltage differences.

Bonding Jumper, Equipment. (Equipment Bonding Jumper) The connection between two or more portions of the equipment grounding conductor. [**70,** 2023]

Discussion. Equipment bonding jumpers are typically short in length and used to ensure a reliable connection such as between an enclosure and its hinged door.

Bonding Jumper, Supply-Side (Supply-Side Bonding Jumper). A conductor installed on the supply side of a service or within a service equipment enclosure(s), or for a separately derived system, that ensures the required electrical conductivity between metal parts required to be electrically connected. [**70:** , 2023]

Discussion. Conductors that are intended to carry fault current for ungrounded conductors that do not have overcurrent protection at their supply point are considered supply-side bonding jumpers. Examples are those for tap conductors and transformer secondary conductors. Conductor sizing is based on a percentage of the ungrounded conductors.

Bonding Jumper, System. (System Bonding Jumper) The connection between the grounded circuit conductor and the supply-side bonding jumper, or the equipment grounding conductor, or both, at a separately derived system. [**70,** 2023]

Discussion. System bonding jumpers provide a fault current path for grounded systems. They can be conductors, busbars, or other suitable means.

Discussion. Equipment made of conductive materials that contains electrical conductors is commonly considered to be "likely to become energized" because an insulation failure can occur and energize the equipment. This type of equipment is generally required to be provided with an effective ground-fault current path. An equipment grounding conductor or bonding jumper is commonly used to provide an effective ground-fault current path. The earth is not permitted as the only path for this fault current.

Ground. The earth. [**70,** 2023]

Discussion. Systems or equipment are either connected to the earth or are considered ungrounded systems.

Ground Fault. An unintentional, electrically conductive connection between an ungrounded conductor of an electrical circuit and the normally non–current-carrying conductors, metal enclosures, metal raceways, metal equipment, or earth. [**70,** 2023]

Discussion. An insulation failure is a common example of a condition that results in a ground fault.

Grounded (Grounding). Connected (connecting) to ground or to a conductive body that extends the ground connection. [**70,** 2023]

Discussion. Equipment that is connected to an equipment grounding conductor can be considered grounded, as the equipment grounding conductor extends the ground connection.

Grounded, Solidly. (Solidly Grounded) Connected to ground without inserting any resistor or impedance device. [**70,** 2023]

Discussion. Solidly grounded is a type of system grounding. Using resistors or reactors are other options for grounding some types of systems.

Grounded Conductor. A system or circuit conductor that is intentionally grounded. [**70,** 2023]

Informational Note: Although an equipment grounding conductor is grounded, it is not considered a grounded conductor. [**70,** 2023]

Discussion. The grounded conductor is commonly grounded by a grounding electrode conductor. Depending on the type of electrical system, this can be a neutral conductor, phase conductor, or line conductor. Insulated grounded conductors are generally required to be identified with white or gray coloring.

Ground-Fault Current Path. An electrically conductive path from the point of a ground fault on a wiring system through normally non–current-carrying conductors, grounded conductors, equipment, or the earth to the electrical supply source. [**70,** 2023]

Informational Note: Examples of ground-fault current paths are any combination of equipment grounding conductors, metallic raceways, metallic cable sheaths, electrical equipment, and any other electrically conductive material such as metal, water, and gas piping; steel framing members; stucco mesh; metal ducting; reinforcing steel; shields of communications cables; grounded conductors; and the earth itself. [**70,** 2023]

Discussion. Current will take all the paths that exist when a voltage difference exists. Some of these paths can be effective ground-fault current paths and others, such as the earth, cannot.

Ground-Fault Current Path, Effective.(Effective Ground-Fault Current Path) An intentionally constructed, low-impedance electrically conductive path designed and intended to carry current during ground-fault events from the point of a ground fault on a wiring system to the electrical supply source and that facilitates the operation of the overcurrent protective device or ground-fault detectors. [**70,** 2023]

Grounding Conductor, Equipment. (Equipment Grounding Conductor) (EGC) A conductive path(s) that is part of an effective ground-fault current path and connects normally non-current-carrying metal parts of equipment together and to the system grounded conductor or to the grounding electrode conductor, or both. [**70,** 2023]

Informational Note No. 1: It is recognized that the equipment grounding conductor also performs bonding. [**70**, 2023]

Informational Note No. 2: See 250.118 [of *NFPA 70*] for a list of acceptable equipment grounding conductors. [**70,** 2023]

Discussion. Equipment grounding conductors are commonly used to provide effective ground-fault current paths. Insulated equipment grounding conductors are generally required to be identified with a green coloring.

Grounding Electrode. A conducting object through which a direct connection to earth is established. [**70,** 2023]

Discussion. Underground metal water pipes, concrete encased steel reinforcing rods, and ground rods are typical grounding electrodes.

Grounding Electrode Conductor (GEC). A conductor used to connect the system grounded conductor or the equipment to a grounding electrode or to a point on the grounding electrode system. [**70,** 2023]

Discussion. Grounding electrode conductors are what actually accomplish the grounding of equipment or systems.

Wireways, Metal. (Metal Wireways) Sheet metal troughs with hinged or removable covers for housing and protecting electrical wires and cable and in which conductors are laid in place after the raceway has been installed as a complete system. [**70~~:~~ ,** 2023]

Discussion. Wireways are a type of raceway used to contain electrical conductors and are commonly available in square cross sections.

Neutral Conductor. The conductor connected to the neutral point of a system that is intended to carry current under normal conditions. [**70,** 2023]

Discussion. Neutral conductors only exist if the system has a neutral point and are generally also grounded conductors.

Neutral Point. The common point on a wye-connection in a polyphase system or midpoint on a single-phase, 3-wire system, or midpoint of a single-phase portion of a 3-phase delta system, or a midpoint of a 3-wire, direct-current system. [**70,** 2023]

Informational Note: At the neutral point of the system, the vectorial sum of the nominal voltages from all other phases within the system that utilize the neutral, with respect to the neutral point, is zero potential. [**70,** 2023]

Discussion. A neutral point only exists on systems that have multiple "connection points" with a connection point in the middle.

Separately Derived System. An electrical power supply output, other than a service, having no direct connection(s) to circuit conductors of any other electrical source other than those established by grounding and bonding connections. [**70,** 2023]

Discussion. Transformers, generators, and batteries that are not directly connected to other sources are examples of separately derived systems. System bonding jumpers, equipment grounding conductors, and grounding electrode conductors are not considered direct connections.

Service. The conductors and equipment connecting the serving utility to the wiring system of the premises served. [**70,** 2023]

Discussion. Services only exist if a utility is supplying the electricity.

Ungrounded. Not connected to ground or to a conductive body that extends the ground connection. [**70**, 2023]

Discussion. Systems that have no direct connection to ground (earth) are considered ungrounded, such as vehicle-supplied battery systems and transformer or generator systems that are not connected to ground. A slang term commonly used for these types of systems is "floating."

Supplemental Information

File Name	Description	Approved
79-2021_PC-8_Annex_J.doc	See attached WORD document for changes in J.2 for the term Grounded conductor.	

Submitter Information Verification

Committee: EEI-AAA

Submittal Date: Mon Mar 20 16:29:09 EDT 2023

Committee Statement

Committee Statement: Extracting the informational note from the 2023 NEC provides clarity to the user that the equipment grounding conductor is not to be considered a current-carrying conductor under normal operating conditions.

Response Message: SR-20-NFPA 79-2023

Public Comment No. 8-NFPA 79-2022 [Section No. J.2]