NEMA Standards Publication TS 2-2003 (R2008)

Traffic Controller Assemblies with NTCIP Requirements (Version 02.06)

Amendment 3-2009

Contactor Amendment

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FOREWORD

This NEMA Standards Publication TS 2-2003, Traffic Controller Assemblies with NTCIP Requirements, has been developed as a design guide for traffic signaling equipment which can be safely installed and provide operational features not covered by the NEMA TS 1-1989, Traffic Control Systems. Within the standard, any reference to a specific manufacturer is made strictly for the purpose of defining interchangeability where there exists no nationally recognized standard covering all the requirements. The manufacturer references do not constitute a preference.

The TS 2 Standards Publication has been established to reduce hazards to persons and property when traffic signaling equipment is properly selected and installed in conformance with the requirements herein. The user's attention is called to the possibility that compliance with this standard may require use of an invention covered by patent rights. By publication of this standard, no position is taken with respect to the validity of this claim or of any patent rights in connection therewith.

Comments and suggestions for the improvement of this document are encouraged. They should be sent to:

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NEMA TS 2-2003 (R2008) Amendment 3 revises NEMA TS 2-2003 (R2008) in two places:

a) Figure 5-4 Cabinet Power Distribution Schematic (a replacement Figure 5-4 is provided); and
b) Section 5.4.2.3, Signal Bus (a replacement Section 5.4.2.3 is provided, and a new Section 5.4.2.3.1, Load Switch DC Power, is added).

Section 1
REPLACE FIGURE 5-4

1.1 Delete Existing Figure 5-4 Cabinet Power Distribution Schematic

On page 172 of NEMA TS 2-2003 (R2008), delete existing Figure 5-4, Cabinet Power Distribution Schematic, as follows:

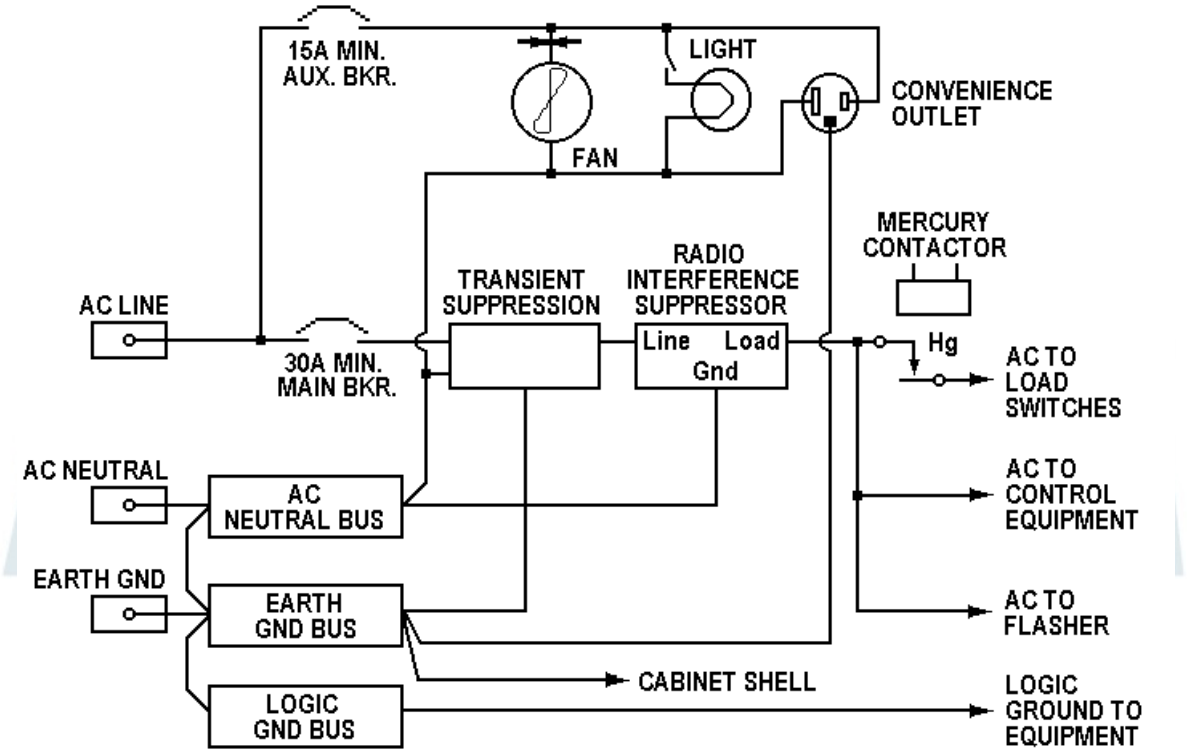

Figure 5–4
CABINET POWER DISTRIBUTION SCHEMATIC

Note: See Section 1.2 for replacement Figure 5-4, Cabinet Power Distribution Schematic [Amendment 3].

1.2 Insert Replacement Figure 5-4 Cabinet Power Distribution Schematic [Amendment 3]

On page 172 of NEMA TS 2-2003 (R2008), insert replacement Figure 5-4, Cabinet Power Distribution Schematic [Amendment 3], as follows:

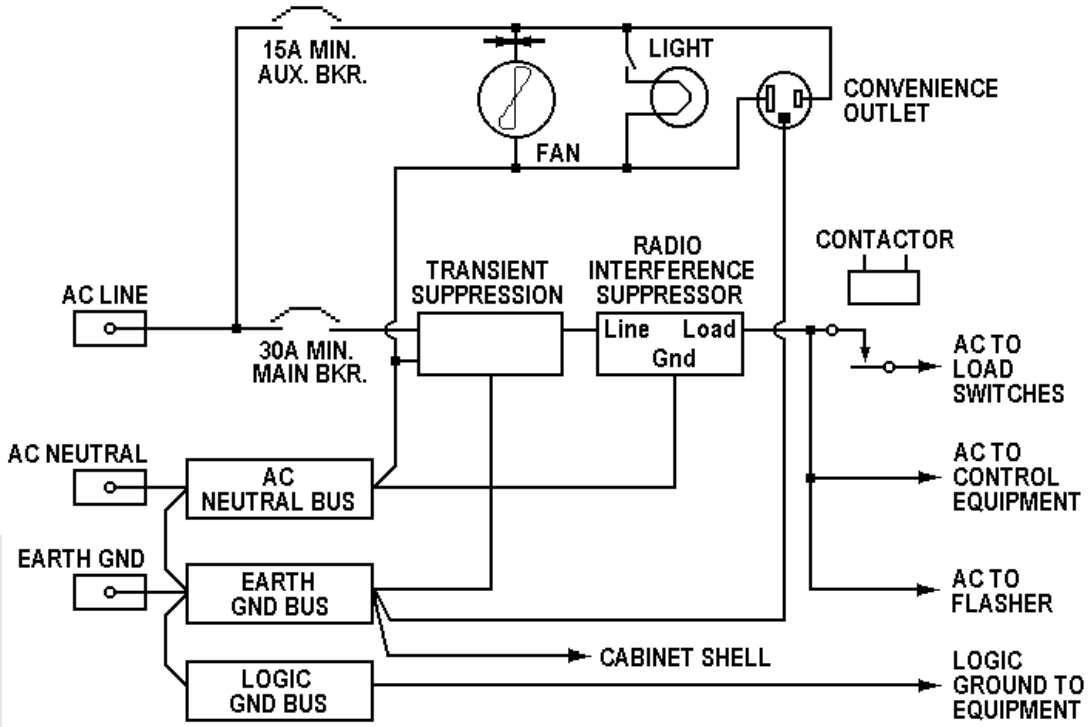

Figure 5–4
CABINET POWER DISTRIBUTION SCHEMATIC [Amendment 3]

Section 2
REPLACE SECTION 5.4.2.3

2.1 Delete Existing Section 5.4.2.3 Signal Bus

On page 173 of NEMA TS 2-2003 (R2008), delete existing Section 5.4.2.3, Signal Bus, as follows:

5.4.2.3 Signal Bus

The signal bus shall be connected to the incoming **AC Line** through a signal bus mercury contactor and a overcurrent protection device. The signal bus mercury contactor shall be energized to provide power to the signal bus. The current rating of the signal bus mercury contactor shall be at least the current rating of the main overcurrent protection device.

Note: See Section 2.2 for replacement Section 5.4.2.3, Signal Bus [Amendment 3], and Section 2.3 for new Section 5.4.2.3.1, Load Switch DC Power [Amendment 3].

2.2 Insert Replacement Section 5.4.2.3 Signal Bus [Amendment 3]

On page 173 of NEMA TS 2-2003 (R2008), insert Section 5.4.2.3, Signal Bus [Amendment 3], as follows:

5.4.2.3 Signal Bus [Amendment 3]

The signal bus shall be connected to the incoming **AC Line** through a signal bus contactor and an overcurrent protection device. The signal bus contactor shall be energized to provide power to the signal bus. The current rating of the signal bus contactor shall be at least the current rating of the main overcurrent protection device.

The purpose of the signal bus contactor is to remove the AC Power from the load switch outputs when the cabinet is in flash transfer operation (MMU Output relay in the Fault state). This is intended to prevent signals that are not routed through the flash transfer relays from being displayed. If the signal bus contactor has failed in the closed state, the AC Power remains connected to the load switch outputs, and incorrect signaling may be visible to the field during flashing operation. [Authorized Engineering Information]

The signal bus contactor should have very high reliability. In addition, the signal bus contactor should have a tendency to fail in the *open* mode, i.e., not passing current. A suitable contactor device should also be rated for continuous duty and should not be affected by transients normally present on the power service. Signal bus contactor contacts should be selected such that welding or shorting of the contacts or otherwise causing the output to fail in the closed condition is minimized. [Authorized Engineering Information]

2.3 Insert NEW Section 5.4.2.3.1 Load Switch DC Power [Amendment 3] [NORMATIVE]

In addition, on page 173 of NEMA TS 2-2003 (R2008), insert a new Section 5.4.2.3.1, Load Switch DC Power [Amendment 3], as follows:

5.4.2.3.1 Load Switch DC Power [Amendment 3]

The cabinet shall be wired such that in the event of a flash transfer operation (MMU Output relay in the Fault state), the 24 VDC power supplied to all load switches shall be removed such that the control circuits cannot activate the load switch circuits. A means shall be provided to manually override the operation of this circuit for diagnostic purposes.

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