



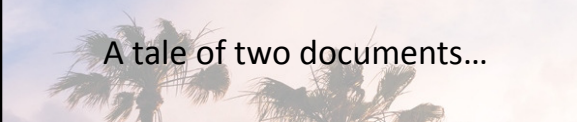
**20TH ANNUAL
Electrical
Safety, Reliability and
Sustainability
Conference &
Exhibition**

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Island Hotel
Newport Beach
Newport Beach, CA
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**The NEC and NEMA: Industry
Recognition of Remanufactured
Equipment**

Christel Hunter
Cerro Wire




A tale of two documents...

- **2017 National Electrical Code**
- **NEMA Policy on Reconditioned Electrical Equipment**




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2017 NEC


- **110.3(A)(1) Informational Note No. 1**
- **PI 3491 – Howard Herndon**
 - **Discussed value of reconditioning to extend equipment life and improve safety**



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2017 NEC

- **110.3(A) Examination of Equipment**
- **110.3(A)(1) Informational Note No. 1**
- **Equipment may be new, reconditioned, refurbished, or remanufactured.**



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2017 NEC


- **110.21(A)(2) Reconditioned Equipment Markings**
- **2 Public Inputs**
- **3 Public Comments**



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2017 NEC

- **110.21(A)(2) Reconditioned Equipment Markings**
- **Name, trademark or other descriptive marking of responsible organization**
- **Date of reconditioning**



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2017 NEC

- **110.21(A)(2) Reconditioned Equipment Markings**
- **Exception for industrial occupancies**



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2017 NEC

- **110.21(A)(2) Reconditioned Equipment Markings**
- **Informational note**
 - **Industry standards available**
 - **Normal servicing not included**



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2017 NEC


- **110.3(C) Product Listing**
- **Product testing, evaluation, and listing shall be performed by recognized qualified electrical testing laboratories and shall be in accordance with applicable product standards recognized as achieving equivalent and effective safety for equipment installed to comply with this Code.**



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NEMA Policy on Reconditioned Equipment

- Available at NEMA.org
- Free download
- https://www.nema.org/Policy/Documents/NEMA-Position_Refubishing%20on%20ElecEquip.pdf



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NEMA Policy on Reconditioned Equipment


- “Proper electrical equipment reconditioning provides a means to extend the life of electrical products as well as an opportunity in some cases to update installed equipment with the latest performance and safety features.”



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NEMA Policy – Requirements for Reconditioning

- The use of design qualified parts, testing to industry-recognized safety standards
- Original manufacturer specification and/or recommendations
- Qualified personnel



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NEMA Policy - Documentation

- Documenting and demonstrating that component replacement has not compromised the manufacturer's original specifications and accepted industry standards



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NEMA Policy – Certification Marks

- Third party certification mark
 - removed or obliterated from reconditioned electrical products
 - indicate that an evaluation of the reconditioning process ... has not been conducted by the original third party.



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NEMA Policy- UL Example

- UL has created rebuilt categories
 - supervision of UL's FUS (Follow-Up Services) field representatives
 - removal of the initial certification mark (if provided)
 - affix a mark that identifies the product as reconditioned




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NEMA Policy- UL Example




UL Rebuilt Equipment Certification Programs

Supporting green construction initiatives



NEMA Policy - Definition


- Reconditioning: the process of restoring electromechanical systems, equipment, apparatus or components to operating conditions as recommended by the manufacturer's instructions, using only design qualified parts




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NEMA Policy – History of Equipment

- It is often impossible to obtain the service records, application environment, and operation parameters of all electrical components.




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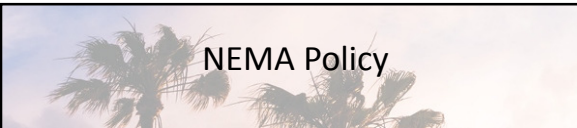


NEMA Policy

APPENDIX B
COMPONENTS OR ASSEMBLIES WHICH MAY BE RECONDITIONED
Electromechanical protective relays, and current transformers
High voltage circuit breakers
Industrial and commercial panel boards
Low and medium voltage power circuit breakers
Low and medium voltage replaceable link fuses
Low voltage switchgear
Manual and magnetic controllers
Medium voltage switchgear
Metallic conduit, tubing, raceways and fittings
Motor control centers
Motors
Switchboards
Uninterruptible Power Supply Equipment




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NEMA Policy

APPENDIX A
COMPONENTS OR ASSEMBLIES NOT SUITABLE FOR RECONDITIONING*
Adjustable speed drives
... (44 items)
Wiring devices

*The components or products listed above are not recommended for reconditioning, unless otherwise indicated by the original manufacturer.



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Looking Forward


- **2017 NEC public input deadline**
- **September 7, 2017**
- **NFPA.org/70**



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What's missing?

- **Definitions of reconditioned, remanufactured and refurbished**
- **Specific information on published reconditioning standards**



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Thank You

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