

Section 1000
General Information

The Professional Electrical Apparatus Recycler's League (PEARL) Reconditioning Standards are the result of hard work by numerous dedicated people from various companies. These standards represent much more than a quality technical document; they put in place a vision by a group of committed people to upgrade standards of testing, quality, safety and documentation in a specific industry. The electrical remanufacturing marketplace is composed of literally thousands of companies. These companies have shared no common technical standards, quality and safety guidelines. Recognizing this, the members of PEARL have dedicated their time and effort to developing these common standards. Their vision is to bring certainty, conformity, quality, and accountability to the used and surplus electrical equipment marketplace.

I was personally privileged to meet the organizers of PEARL over three years ago, and became enthused with their mission and goal. Technical Diagnostic Services, Inc., has been privileged to be a part of the development of the PEARL Reconditioning Standards. Although Technical Diagnostic Services, Inc., facilitated the development of the standards and provided technical input and review, key information was provided by member companies. These companies represent a diverse cross section of backgrounds and skill areas and include representatives from motor repair companies, recycling companies, switchgear remanufacturing companies, transformer testing and maintenance companies, field-testing and service companies, and many others. The wealth of knowledge from these companies has been utilized to create this common standard.

The following standards are being provided for your use and benefit. Whether you are an equipment or service company who can benefit by implementing these standards, or a buyer of electrical equipment or services, you can be reassured of the pedigree and quality of your purchases.

*John J. Lapicola, P.E.
Technical Diagnostic Services, Inc.*

Mr. Lapicola is President and Founder of Technical Diagnostic Services, Inc. (TDS). TDS is a leading electrical and instrumentation testing and maintenance, and technical consulting company. Mr. Lapicola is a registered Professional Engineer in the states of Texas and California. He is a member of the American Nuclear Society, IEEE, American Technical Education Association, ASTD, as well as many other related organizations. He served on the Operations and Maintenance Committee of the Atomic Industrial Forum. He has recently been appointed to the Steering Committee of the American Standards Institute

Important Notice

In no event shall the Professional Electrical Apparatus Recyclers League (PEARL), its officers, directors or members be held liable for any claims or damages in connection with or arising from the use of this document. The Reconditioning Standards are not meant to take the place of instructions specified by the equipment manufacturer. These Reconditioning Standards may incorporate advanced technology, such as developments regarding use of lubricants. Please contact the equipment manufacturer to determine whether to adhere to the original instructions supplied by the manufacturer.

The Reconditioning Standards are subject to continual review. PEARL members and others who use this document are invited to submit recommended changes to PEARL Headquarters for consideration by the Technical Review Committee.

PEARL members who use these Standards when reconditioning or remanufacturing a product for sale may attach a PEARL Quality Seal to the product only when *all* applicable reconditioning procedures and requirements prescribed by the Reconditioning Standards have been followed. PEARL Quality Seals are available to members from PEARL Headquarters. The seals are sequentially numbered and will be registered to the individual PEARL member.

The PEARL Reconditioning Standards pertain to the reconditioning of electrical distribution equipment and accessories. The term *reconditioning* is defined as "the process of returning electrical equipment to safe operating condition as recommended by the manufacturer's instructions or industrial standards, and tested by recognized industrial test standards."

This standard has been developed based on manufacturer's literature, industrial standards such as IEEE, NEMA, NETA and ASTM, and PEARL member recommendations.

Some of the standards are as follows:

InterNational Electrical Testing Association Inc.
Maintenance Testing Specifications 1997
NETA-MTS 1997

National Fire Protection Association
Recommended Practice for Electrical Equipment Maintenance 1998
NFPA 70B

American National Standards Institute and Institute of Electrical and Electronic Engineers, Inc.

Various Standards to include:

ANSI/IEEE 141	Recommended Practice for Electric Power Distribution for Industrial Plants
ANSI/IEEE 400	Guide for Making High Direct Voltage Tests on Power Cable Systems in the Field
ANSI/IEEE C57.95	Distribution, Power and Regulating Transformers
ANSI/IEEE C37.95	Guides and Standards for Circuit Breakers, Switchgear, Relays, Substations, and Fuses

National Electrical Manufacturer's Association (NEMA)
AB4-1991 Guidelines for Inspection and Preventative Maintenance of Molded-Case Circuit Breakers Used in Commercial and Industrial Applications

AVO Training Institute
Substation Maintenance I - Certification Course Textbook
Substation Maintenance II - Certification Course Textbook
Low Voltage Power Circuit Breaker Maintenance Course Textbook
Medium Voltage Circuit Breaker Maintenance Course Textbook

Electrical Equipment Testing and Maintenance - A.S. Gill

Doble Engineering Company
Use of Doble Power Factor Insulation Tests for Maintenance Testing of Electrical Apparatus

Westinghouse Electrical Maintenance Hints - Westinghouse Corp.
Switchgear and Control Handbook – Smeaton

American Electrician's Handbook - Croft, Carr, Watt, & Summers

General Electric Company
Various Maintenance Instruction Documents for Specific Electrical Equipment

Westinghouse Company
Various Maintenance Instruction Documents for Specific Electrical Equipment

Square D Company
Various Maintenance Instruction Documents for Specific Electrical Equipment

ABB Services
Various Maintenance Instruction Documents for Specific Electrical Equipment

U.S. Army
Various Technical Manuals and Documents on Maintenance of Electrical Equipment

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New

The product was purchased through the manufacturer's normal distribution network. The product is in its original factory packaging and is subject to the manufacturer's warranty.

Surplus, New Surplus

The product has not been put into service and is in the original factory packaging.

The product has been purchased through sources other than the manufacturer's normal distribution network. The product is not covered by the original manufacturer's warranty. It is at the sole discretion of the seller as to what testing is performed and what warranties are granted on "New Surplus" product. A PEARL Quality Seal may be applied to the product only when all applicable procedures and requirements mandated by the PEARL Reconditioning Standards have been followed.

Unused, Unused Surplus

The product has been inspected and determined to be "unused".

The product may or may not be in the original manufacturer's packaging materials. The product is not covered by the original manufacturer's warranty. A product that has been installed as a component of an electrical or mechanical system that has been energized but not put into service will not be considered "Unused". It is at the sole discretion of the seller as to what testing is performed and what warranties are granted on "Unused" product. A PEARL Quality Seal may be applied to the product only when all applicable procedures and requirements mandated by the PEARL Reconditioning Standards have been followed.

Remanufactured

The seller warrants that the product has been remanufactured to the manufacturer's original factory standards.

Warranty will extend for a minimum period of 90 days from the date the product is shipped, during which time the product will operate satisfactorily under nameplate-rated load and normal usage and conditions, upon proper installation. Should the product fail during the warranty period, the buyer is required to return the product to the seller, at the buyer's expense, for inspection and verification of the warranty claim. Should the warranty claim be valid, PEARL members may repair or replace the product. Should the repair or replacement of the product not be economically feasible, the seller will return the full purchase price of the product to the buyer. If a product is repaired or replaced, the new warranty period will be extended a minimum of 90 days from the ship date of the repaired or replaced product. PEARL members may offer warranties for periods longer than 90 days at their own discretion. A PEARL Quality Seal may be applied to the product only when all applicable procedures and requirements mandated by the PEARL Reconditioning Standards have been followed.

Reconditioned

The product has been reconditioned pursuant to the standards established in the PEARL Reconditioning Standards.

Warranty will extend for a minimum period of 90 days from the date the product is shipped, during which time the product will operate satisfactorily under nameplate-rated load and normal usage and conditions, with proper installation. Should the product fail during the warranty period, the buyer is required to return the product to the seller, at the buyer's expense, for inspection and verification of the warranty claim. Should the warranty claim be valid, PEARL members may repair or replace the product. Should the repair or replacement of the product not be economically feasible, the seller will return the full purchase price of the product to the buyer. If a product is repaired or replaced, the new warranty period will be extended a minimum of 90 days from the ship date of the repaired or replaced product. PEARL members may offer warranties for periods longer than 90 days at their own discretion. A PEARL Quality Seal may be applied to the product only when all applicable procedures and requirements mandated by the PEARL Reconditioning Standards have been followed.

Electrically O.K.

The product has been tested and determined to be electrically and mechanically operational.

The seller should disclose to the buyer what tests were performed to qualify the product. The product is not warranted to operate in service for any set time period. The buyer may test the product upon receipt. Should the buyer not agree that the product is "Electrically O.K.", the buyer can return the product to the seller for a full refund. Each PEARL member may determine their own return policies with respect to reasonable return period allowed, freight, and acceptable test procedures of the buyer.

Mechanically O.K.

The seller has inspected the product and all mechanical components are determined to be operational.

Mechanically O.K. does not include internally-installed bearings. Should the buyer not agree that the product is "Mechanically O.K.", the buyer can return the product to the seller for a full refund. Each PEARL member may determine their own return policies with respect to reasonable return period allowed, freight, and acceptable inspection procedures of the buyer.

As Is, No Broken or Missing External Parts

The seller only warrants that the product has no broken or missing external parts.

The product is sold "As Is". The seller has inspected the product externally for broken or missing parts. The seller makes no attempt to disassemble the product to inspect the internal components. The seller recommends the buyer inspect the product prior to shipment. If inspection of the product by the buyer is not possible, the buyer must rely on the seller's oral and/or written description of the product. There is no warranty. Should the buyer not be satisfied with the condition of the product, the seller is not required to take the product back.

As Is

The product is sold as is, with no warranty.

The product is sold "As Is" with no attempt made by the seller to determine the completeness or soundness of the product. The seller recommends the buyer inspect the product prior to shipment. If inspection of the product by the buyer is not possible, the buyer must rely on the seller's oral and/or written description of the product. There is no warranty. Should the buyer not be satisfied with the condition of the product, the seller is not required to take the product back.