The term "reconditioning" is defined as "the process of returning electrical equipment to safe and reliable operating condition based upon the design of the original manufacturer at the time of manufacturing."

REFERENCES

The following references are use in this standard. Each of these references can be found in their respective listed locations.

Table References: Section 6000

Table 1: US Standard bus connection bolt torque values.
Table 2: Insulation resistance and test values for electrical apparatus.
Table 11: Insulation resistance and test temperature conversion to 20°C values.

The Following PEARL Standards are referenced in this standard and should be followed if applicable.

PEARL Standard References

Section 1200: Low Voltage Circuit Breakers
- Standard 1211 – Low Voltage Molded Case Circuit Breaker with Thermal Magnetic Trip Unit
- Standard 1212 – Low Voltage Molded Case Circuit Breaker with Solid State Trip Unit
- Standard 1214 – Low Voltage Molded Case Switches (Non-Automatic Circuit Interrupters)
- Standard 1215 – Low Voltage Molded Case Motor Circuit Protectors

I TEST EQUIPMENT

The following test equipment is required to perform the testing requirements of this reconditioning standard:

1. Insulation Resistance Test Set (Megohmeter) 1000 Vdc minimum
2. High Current Test Set

One of the following pieces of test equipment is required to perform the contact resistance testing requirements of this reconditioning standard:

1. Digital Low Resistance Ohmmeter (DLRO - 10 amp unit is sufficient.)
2. DC Current Source and a Millivoltmeter

One of the following pieces of test equipment may be required to perform the testing requirements of this reconditioning standard, depending on the accessories:

1. AC Voltage Supply
2. DC Voltage Supply

II RECONDITION EVALUATION

These steps are used to determine what will be required to recondition this product under this standard.

1 INSPECTION

1.1 Frame/Enclosure

1.1.1 Ensure that the nameplate/label data is legible.

1.1.2 Ensure that the third party listing service label is legible.

1.1.3 Inspect the overall frame/enclosure for missing screws, bolts, nuts, fasteners, retainers and keepers.

1.1.4 Inspect for rust and corrosion.

1.1.5 Inspect insulation structure for signs of overheating and deterioration.

1.1.6 Record results on an approved PEARL Evaluation Form.

1.2 Operating Mechanism

1.2.1 Inspect for signs of rust and corrosion.

1.2.2 Inspect for excessive and inappropriate lubrication.

1.2.3 Inspect for missing screws, bolts, nuts, fasteners, retainers and keepers.

1.2.4 Manually operate bus duct enclosed circuit breaker three (3) times while checking for proper operation of the quick-make and quick-break feature.

1.2.5 Record results on an approved PEARL Evaluation Form.

1.3 Current Carrying Components

1.3.1 Inspect line and load connections for signs of overheating.

1.3.2 Inspect line and load connections for missing and defective parts.

1.3.3 Inspect hinge/pivot joints for signs of overheating.

1.3.4 Inspect hinge/pivot joints for missing and defective parts.

1.3.5 Inspect any other current carrying components for signs of overheating.

1.3.6 Inspect any other current carrying components for missing and defective parts.

1.3.7 Record results on an approved PEARL Evaluation Form.

1.4 Molded Case Circuit Breakers

1.4.1 Molded case circuit breakers will be evaluated in accordance with PEARL Reconditioning Standards found in Section 1200.

1.4.2 Record results on an approved PEARL Evaluation Form.

1.5 Interlocks

1.5.1 Inspect all interlocks for proper operation.

1.5.2 Record results on an approved PEARL Evaluation Form.

2 TESTING

2.1 Insulation Resistance

2.1.1 Perform an insulation resistance test at test values specified in Table 2 of Section 6000 as follows:

2.1.1.1 Switch in the open position

2.1.1.1.1 Line to load

2.1.1.2 Switch in the closed position

2.1.1.2.1 Phase to phase

2.1.1.2.2 Phase to frame/enclosure

2.1.2 Correct for temperature, if necessary (Table 11).

2.1.3 Record results on an approved PEARL Evaluation Form.

2.1.4 Compare test results to manufacturer's recommendations or Table 2 of Section 6000.

2.2 Molded Case Circuit Breakers

2.2.1 Molded case circuit breakers will be evaluated in accordance with PEARL Reconditioning Standards found in Section 1200.

2.2.2 Record results on an approved PEARL Evaluation Form.

III RECONDITION PROCEDURES

The following procedures are in a recommended order and are required to recondition this product. PEARL recognizes that, based upon actual product design and/or as found condition, some of these procedures may not be applicable. The testing requirement must be completed before the product can be labeled as a PEARL reconditioned product.

1 RECONDITIONING

1.1 Frame/Enclosure

1.1.1 Disassemble to clean.
1.1.2 Clean all parts of contamination and corrosion.
1.1.3 Prepare the frame/enclosure to paint, as necessary.
1.1.4 Paint frame/enclosure.

1.2 Missing or Defective Components, Parts and Hardware

1.2.1 Replace or repair any missing or defective components, parts and hardware found during the inspection phase of this standard.

1.3 Operating Mechanism

1.3.1 Disassemble operating mechanism, as necessary.
1.3.2 Clean operating mechanism.
1.3.3 Replace any defective parts.
1.3.4 Replate operating mechanisms parts, as necessary.
1.3.5 Assemble operating mechanism.
1.3.6 Apply proper lubrication.
1.3.7 Manually operate bus duct enclosed circuit breaker five (5) times while checking for proper operation of the quick-make and quick-break feature.

1.4 Molded Case Circuit Breakers

1.4.1 Molded case circuit breakers will be reconditioned in accordance with PEARL Reconditioning Standards found in Section 1200.
1.4.2 Record results on an approved PEARL Reconditioning Test Form.

1.5 Current Carrying Components

1.5.1 Line and load connections.
1.5.1.1 Clean and degrease.
1.5.1.2 Replate, as necessary.
1.5.2 Hinge/pivot joints.
1.5.2.1 Clean and degrease.
1.5.2.2 Replate, as necessary.
1.5.3 Other current carrying components.
1.5.3.1 Clean and degrease.
1.5.3.2 Replate, as necessary.

1.6 Torque

1.6.1 Check all screw and bolt connections for the proper torque per manufacturer's recommendations or industrial standards (Table 1).
1.6.2 Record results on an approved PEARL Reconditioning Test Form.

1.7 Final Assembly

1.7.1 Ensure that frame/enclosure is plumb and square.

1.7.2 Cover any unused openings.

1.7.3 Ensure that the nameplate/label data is complete, correct and legible.

1.8 Final Operation

1.8.1 Ensure that all components, structures, devices and assemblies are complete and equipment is ready for service prior to beginning operations.

1.8.2 Manually operate the switch a minimum of ten (10) times while checking for proper operation of the quick-make and quick-break feature.

1.8.3 All devices must operate properly in order for the product to become a PEARL labeled product.

1.8.4 Record results on appropriate PEARL Reconditioning Test Form.

2 TESTING

2.1 Insulation Resistance

2.1.1 Perform an insulation resistance at test values specified in Table 2 of Section 6000 as follows:

2.1.1.1 Bus duct enclosed circuit breaker in the open position

2.1.1.1.1 Line to load

2.1.1.1.2 Line to frame/enclosure

2.1.1.1.3 Load to frame/enclosure

2.1.1.1.4 Phase to phase on line side

2.1.1.1.5 Phase to phase on load side

2.1.1.2 Bus duct enclosed circuit breaker in the closed position

2.1.1.2.1 Phase to phase

2.1.1.2.2 Phase to frame

2.1.2 Correct for temperature, if necessary (Table 11).

2.1.3 Record results on an approved PEARL Reconditioning Test Form.

2.1.4 Compare results to manufacturer's recommendations or Table 2 of Section 6000. The test results must be within the guidelines recommended in order for the product to become a PEARL labeled product.

2.2 Contact Resistance

2.2.1 Perform a contact resistance, millivolt drop test or watt-loss test from line to load on each phase of a closed circuit breaker.

2.2.2 Record results on an approved PEARL Reconditioning Test Form.

2.2.3 A PEARL recognized method is comparing the test results of each pole. Results should be within 50% for any of the poles. Any industrial standard used shall provide at least the same integrity as the PEARL recognized standard of comparing the test results of each pole and ensuring that they are within 50% of each other.

2.2.4 The test results must be within the guidelines recommended in order for the product to become a PEARL labeled product.

IV PEARL CERTIFICATION

This product has now been reconditioned under the PEARL Reconditioning Standard. The blue PEARL Reconditioning Quality Seal may now be placed on the device.