

<i>PEARL Reconditioning Standards</i>			
<i>LOW VOLTAGE AC CONTACTOR</i>	<i>PROPOSED STANDARD</i>		
	<i>Standard</i>	<i>Number</i>	<i>Date</i>
	<i>1810</i>	<i>5</i>	<i>11-2008</i>

This standard is designed to verify that an ac contactor is in a safe and reliable operating condition. In the event that the contactor is not in this condition then this standard will establish the reconditioning requirements. 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 2: Insulation resistance and test values for electrical apparatus.

Table 11: Insulation resistance and test temperature conversion to 20°C values.

I TEST EQUIPMENT

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

1. Insulation Resistance Test Set (Megohmmeter) 1000 Vdc minimum
2. AC and DC Voltage Supply
3. Multimeter

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II RECONDITION EVALUATION

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

1 INSPECTION

1.1 General

- 1.1.1 Ensure that the nameplate data is legible.
- 1.1.2 Ensure that the third party listing service label is legible.
- 1.1.3 Inspect for missing screws
- 1.1.4 Check for stripped screws
- 1.1.5 Inspect case for cracks and missing pieces
- 1.1.6 Inspect for overheating of any wire
- 1.1.7 Inspect exterior for signs of;
 - 1.1.7.1 Contamination
 - 1.1.7.2 Overheating
 - 1.1.7.3 Corrosion
 - 1.1.7.4 Rust
 - 1.1.7.5 Missing Components
 - 1.1.7.6 Damaged Components
- 1.1.8 Record results on an approved PEARL Evaluation Form.

1.2 Contacts

- 1.2.1 Inspect for excessive deterioration.
- 1.2.2 Inspect Arc Quiches for deterioration
- 1.2.3 Inspect for cracks, chips and pitting.
- 1.2.4 Inspect for deteriorated springs
- 1.2.5 Inspect for overheating
- 1.2.6 If required by manufacturer check for;
 - 1.2.6.1 Gap
 - 1.2.6.2 Wipe
 - 1.2.6.3 Pressure
 - 1.2.6.4 Alignment.
- 1.2.7 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 Record results on appropriate PEARL Evaluation Report.

1.4 Coil

- 1.4.1 Inspect for overheating
- 1.4.2 Inspect for cracks and damage
- 1.4.3 Inspect for deterioration
- 1.4.4 Check terminals for worn, stripped threads, missing hardware or damaged terminals.
- 1.4.5 Ohm coil and check ohm reading against manufacture recommended or known ohm value.

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1.4.6 Record results on an approved PEARL Evaluation Form.

1.5 Irons/Core

1.5.1 Inspect for worn or pitted faces

1.5.2 Inspect for missing or worn shading coils (on AC coils)

1.5.3 Inspect for rust

1.5.4 Inspect for loose laminations (on AC Coils)

1.5.5 Inspect for deterioration

1.5.6 Inspect for missing or damaged components

1.5.7 Record results on an approved PEARL Evaluation Form.

1.6 Armature

1.6.1 Inspect for overheating

1.6.2 Inspect for cracks and damage

1.6.3 Inspect for deterioration

1.6.4 Inspect spring for deterioration

1.6.5 Inspect for missing or damaged components

1.6.6 Record results on an approved PEARL Evaluation Form.

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2 TESTING

2.1 Operation

2.1.1 Primary Contact Transfer

2.1.1.1 Apply rated voltage to operating coil, verify each contact closes.

2.1.1.2 Remove rated voltage, verify each contact opens

2.1.1.3 Record results on an approved PEARL Evaluation Form.

2.1.2 Minimum Operating Voltage

2.1.2.1 Increase voltage to until the contactor operates. Record as minimum operating pick up voltage.

2.1.2.2 Slowly reduce the applied voltage until the contact drops out. Record as minimum drop out voltage.

2.1.2.3 Compare to manufacturers operating voltages.

2.1.2.4 Record results on an approved PEARL Evaluation Form.

2.2 Auxiliary Contacts

2.2.1.1 Apply rated voltage to operating coil, verify each normally open and close contact position.

2.2.1.2 Remove rated voltage, verify each normally open and close contact position

2.2.1.3 Record results on an approved PEARL Evaluation Form.

2.3 Insulation Resistance

2.3.1 Perform an insulation resistance test at test voltage specified by manufacturer or by Table 2 in PEARL section 6000. Correct for temperature, if necessary (Table 11).

2.3.1.1 Contactor De-energized

2.3.1.1.1 Test across open poles from line to load at terminals.

2.3.1.1.2 Test phase to phase at the line side terminals.

2.3.1.1.3 Test phase to phase at the load side terminals.

2.3.1.1.4 Test the load side terminals to ground.

2.3.1.1.5 Test the line side terminals to ground.

2.3.1.1.6 Record results on an approved PEARL Evaluation Form.

2.3.1.1.7 Compare test results to manufacturer's recommendations or Table 2 in PEARL section 6000.

2.3.1.2 Contactor Energized

2.3.1.2.1 Test phase to phase on each pole.

2.3.1.2.2 Test each phase to ground

2.3.1.2.3 Record results on an approved PEARL Evaluation Form.

2.3.1.2.4 Compare test results to manufacturer's recommendations or Table 2 in PEARL section 6000.

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III RECONDITIONING PROCEDURES

The following procedures are in a recommended order and are required to recondition this product. PEARL recognizes that, based on actual product design and 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 Exterior

1.1.1 Clean all exterior surface to remove any:

1.1.1.1 Contamination

1.1.1.2 Corrosion.

1.1.1.3 Record results on an approved PEARL Reconditioning Test Form

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.

1.2.2 Replace any defective contact or contact assembly

1.2.3 Record results on an approved PEARL Reconditioning Test Form

1.2 Contacts

1.2.1 If required by manufacturer adjust for proper;

1.2.1.1 Gap

1.2.1.2 Wipe

1.2.1.3 Pressure

1.2.1.4 Alignment.

1.2.2 Record results on an approved PEARL Reconditioning Test Form

2 TESTING

2.1 Operation

2.1.1 Contactor Mechanical Operation

2.1.1.1 Operate contactor a minimum of five (5) operations by applying rated voltage to operating coil.

2.1.2 Primary Contact Transfer

2.1.2.1 Apply rated voltage to operating coil, verify each contact closes

2.1.2.2 Remove rated voltage, verify each contact opens

2.1.2.3 Record results on an approved PEARL Reconditioning Test Form

2.1.3 Minimum Operating Voltage

2.1.3.1 Increase voltage to until the contactor operates. Record as minimum operating pick up voltage.

2.1.3.2 Slowly reduce the applied voltage until the contact drops out. Record as minimum drop out voltage.

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2.1.3.3 Compare to manufacturers operating voltages.

2.1.3.4 Record results on an approved PEARL Reconditioning Test Form.

2.2 Auxiliary Contacts

2.2.1.1 Apply rated voltage to operating coil, verify each normally open and close contact position.

2.2.1.2 Remove rated voltage, verify each normally open and close contact position

2.2.1.3 Record results on an approved PEARL Reconditioning Test Form.

2.3 Insulation Resistance

2.3.1 Perform an insulation resistance test at test voltage specified by manufacturer or by Table 2 in PEARL section 6000. Correct for temperature, if necessary (Table 11).

2.3.1.1 Contactor De-energized

2.3.1.1.1 Test across open poles from line to load at terminals.

2.3.1.1.2 Test phase to phase at the line side terminals.

2.3.1.1.3 Test phase to phase at the load side terminals.

2.3.1.1.4 Test the load side terminals to ground.

2.3.1.1.5 Test the line side terminals to ground.

2.3.1.1.6 Record results on an approved PEARL Reconditioning Test Form.

2.3.1.1.7 Compare test results to manufacturer's recommendations or Table 2 in PEARL section 6000.

2.3.1.2 Contactor Energized

2.3.1.2.1 Test phase to phase on each pole.

2.3.1.2.2 Test each phase to ground

2.3.1.2.3 Record results on an approved PEARL Reconditioning Test Report

2.3.1.2.4 Compare test results to manufacturer's recommendations or Table 2 in PEARL section 6000.

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.