PEARL Inspect & Test Standards			
LOW VOLTAGE DC CONTACTOR	**PROPOSED STANDARD**		
	Standard	*Number*	*Date*
	1830-I	*3*	*6-2009*

This standard is designed to verify that a low voltage DC contactor is in a safe and reliable operating condition based upon the design of the original manufacturer at the time of manufacturing. PEARL testing does not verify the claims of the original equipment manufacturer as to the validity of its design criteria. In the event that the device is not in this condition then this standard cannot be used and the PEARL Reconditioning Standard needs to be followed.

PEARL does not warrant, guarantee or make any representation regarding the correctness of specifications, use for any particular purpose, quality or extent of testing, accuracy, or reliability as to any equipment, products or documentation referenced herein.

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 standard:

1. Insulation Resistance Test Set (Megohmeter) 500 Vdc minimum
2. DC Voltage Supply
3. Multimeter

II EVALUATION

The following procedures shall be used to determine the condition of a low voltage DC contactor 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
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

1.1.8 Record results on an approved PEARL Evaluation Form.

1.2 Contacts

1.2.1 Inspect for excessive deterioration.
1.2.2 Inspect for cracks, chips and pitting.
1.2.3 If required by manufacturer check for;
- **1.2.3.1** Gap
- **1.2.3.2** Wipe
- **1.2.3.3** Pressure
- **1.2.3.4** Alignment.

1.2.4 Record results on an approved PEARL Evaluation Form.

1.7 Current Carrying Components

1.7.1 Inspect line and load connections for signs of overheating.
1.7.2 Inspect line and load connections for missing and defective parts.
1.7.3 Inspect hinge/pivot joints for signs of overheating.
1.7.4 Inspect hinge/pivot joints for missing and defective parts.
1.7.5 Record results on an approved PEARL Evaluation Form.

NOTE: If the original equipment manufacturer has designed the coil and the various parts and pieces to be field installed, then the devices may be replaced as necessary. Otherwise, the PEARL Reconditioning Standards need to be followed.

2 TESTING

2.1 Operation

2.1.1 Contact Transfer

2.1.1.1 Using a multimeter verify each contact state as open

2.1.1.2 Apply rated voltage to operating coil

2.1.1.3 Using a multimeter verify the transfer of each contact

2.1.1.4 Remove rated voltage

2.1.1.5 Record results on an approved PEARL Evaluation Form.

2.1.2 Minimum Operating Voltage

2.1.2.1 Increase voltage to operating coil until relay operates

2.1.2.2 Record as minimum operating voltage.

2.1.2.3 Remove voltage

2.1.2.4 Record results on an approved PEARL Evaluation Form.

2.1.2.5 Compare manufacturer's minimum operating voltage to test voltage found in 2.1.2.2 above.

2.2 Insulation Resistance

2.2.1 Perform an insulation resistance test at test voltage specified by manufacturer or using a 500 volt dc megohmeter.

2.2.1.1 Relay De-energized

2.2.1.1.1 Test across each contact

2.2.1.1.2 Test between contacts on the line side

2.2.1.1.3 Test between contacts on the load side

2.2.1.2 Relay Energized

2.2.1.2.1 Test between contacts

2.2.2 Record results on an approved PEARL Evaluation Form.

2.2.3 Compare test results to manufacturer's recommendations or a minimum of 1 megohm.

2.3 Checks and Adjustments

2.3.1 Make all checks and adjustments per manufacturer's recommendations. In the absence of a manufacturer's recommendations, any check or adjustment made will be based upon procedures that will ensure the original manufacturer's design.

2.3.2 All checks and adjustments must be within the guidelines recommended in order for the product to become a PEARL labeled product.

2.3.3 Record results on an approved PEARL Evaluation Form.

2.4 Torque

2.4.1 Check all screw and bolt connections for the proper torque per manufacturer's recommendations or Table 1 of Section 6000.

2.4.2 Record results on an approved PEARL Evaluation Form.

2.5 Final Operation

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

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

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

2.5.4 Record results on appropriate PEARL Evaluation Form.

3 EVALUATION REVIEW

In order for the device to be eligible for the Inspect & Test Quality Seal, the device needs to have passed all of the preceding Inspection (1) and Testing (2) points. Any failures in the process will require that the device be "Reconditioned" at which time the PEARL Reconditioning Standard needs to be followed.

III PEARL CERTIFICATION

This product has now been inspected and tested and has passed all tests under the PEARL Inspect & Test Standard. The green PEARL Inspect & Test Quality Seal may now be placed on the device.