

RFI FORM**Contractor Name:****Address:****Phone/Fax:****Send to:** cecil.nichols@va.gov

RFI (REQUEST FOR INFORMATION)			
PROJECT NO.:		RFI NO.:	009
PROJECT NAME:	MAINTAIN Electrical Power Distribution System	DATE REQUESTED:	08/07/2017
SOLICITATION NO.:	VA262-17-B-1269	REFERENCE:	
DRAWING:		SPECIFICATION SECTION:	
DESCRIPTION OF PROBLEM OR INFORMATION BEING REQUESTED			
Please be specific as possible: There is no detailed scope of work to be done on medium circuit breakers. Please clarify?			
PROJECT MANAGER'S RESPONSE			
Missing detailed Scope of Work scanned and provided along with this RFI response.			
TRACKING NO.:		AMENDMENT NO.:	
VA PROJECT ENGINEER/MANAGER: John Gorman, Electronics & Electrical Supervisor		DATE: 08/17/2017	

7. INSPECTION AND TEST PROCEDURES

7.6.1.3 Circuit Breakers, Air, Medium-Voltage

1. Visual and Mechanical Inspection

1. Inspect physical and mechanical condition.
2. Inspect anchorage, alignment, and grounding.
3. Verify that all maintenance devices are available for servicing and operating the breaker.
4. Prior to cleaning the unit, perform as-found tests, if required.
5. Clean the unit.
6. Inspect arc chutes.
7. Inspect moving and stationary contacts for condition, wear, and alignment.
8. If recommended by manufacturer, slow close/open breaker and check for binding, friction, contact alignment, contact sequence, and penetration.
9. Perform all mechanical operation tests on the operating mechanism in accordance with manufacturer's published data.
10. Inspect bolted electrical connections for high resistance using one of the following methods:
 1. Use of a low-resistance ohmmeter in accordance with Section 7.6.1.3.2.
 2. Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method in accordance with manufacturer's published data or Table 100.12.
 3. Perform a thermographic survey in accordance with Section 9.
11. Verify cell fit and element alignment.
12. Verify racking mechanism operation.
13. Inspect puffer operation.
14. Use appropriate lubrication on moving current-carrying parts and on moving and sliding surfaces.

* Optional



7. INSPECTION AND TEST PROCEDURES

7.6.1.3 Circuit Breakers, Air, Medium-Voltage (*continued*)

- *15. Perform time-travel analysis.
- 16. Perform as-left tests.
- 17. Record as-found and as-left operation-counter readings.

2. Electrical Tests

- 1. Perform resistance measurements through bolted connections with a low-resistance ohmmeter, if applicable. See Section 7.6.1.3.1.
- 2. Perform insulation-resistance tests for one minute on each pole, phase-to-phase and phase-to-ground with the circuit breaker closed, and across each open pole. Apply voltage in accordance with manufacturer's published data. In the absence of manufacturer's published data, use Table 100.1.
- *3. Perform insulation-resistance tests on all control wiring with respect to ground. The applied potential shall be 500 volts dc for 300-volt rated cable and 1000 volts dc for 600-volt rated cable. Test duration shall be one minute. For units with solid-state components or control devices that cannot tolerate the applied voltage, follow manufacturer's recommendation.
- 4. Perform a contact/pole-resistance test.
- 5. With the breaker in a test position, perform the following tests:
 - 1. Trip and close breaker with the control switch.
 - 2. Trip breaker by operating each of its protective relays.
 - 3. Verify mechanism charge, trip-free, and antipump functions.
- *6. Perform minimum pickup voltage tests on trip and close coils in accordance with Table 100.20.
- *7. Perform power-factor or dissipation-factor tests with breaker in both the open and closed positions.
- *8. Perform power-factor or dissipation-factor test on each bushing.
- *9. Perform an overpotential test on each phase with the circuit breaker closed and the poles not under test grounded. Test voltage should be in accordance with manufacturer's published data. In the absence of manufacturer's published data, use Table 100.19.

*Optional



7. INSPECTION AND TEST PROCEDURES

7.6.1.3 Circuit Breakers, Air, Medium-Voltage (*continued*)

10. Verify blowout coil circuit continuity.
11. Verify operation of heaters, if applicable.
- *12. Test instrument transformers in accordance with Section 7.10.

3. Test Values

3.1 Test Values – Visual and Mechanical

1. Compare bolted connection resistance values to values of similar connections. Investigate values which deviate from those of similar bolted connections by more than 50 percent of the lowest value. (7.6.1.3.1.10.1)
2. Bolt-torque levels should be in accordance with manufacturer's published data. In the absence of manufacturer's published data, use Table 100.12. (7.6.1.3.1.10.2)
3. Results of the thermographic survey shall be in accordance with Section 9. (7.6.1.3.1.10.3)
4. Compare travel and velocity values to manufacturer's published data and previous test data. (7.6.1.3.1.15)

3.2 Test Values – Electrical

1. Compare bolted connection resistance values to values of similar connections. Investigate values which deviate from those of similar bolted connections by more than 50 percent of the lowest value.
2. Circuit breaker insulation resistance should be in accordance with Table 100.1.
3. Insulation-resistance values of circuit breakers should be in accordance with manufacturer's published data. In the absence of manufacturer's published data, use Table 100.1. Values of insulation resistance less than this table or manufacturer's recommendations should be investigated.
4. Microhm or dc millivolt drop values shall not exceed the high levels of the normal range as indicated in the manufacturer's published data. If manufacturer's data is not available, investigate values that deviate from adjacent poles or similar breakers by more than 50 percent of the lowest value.
5. Breaker mechanism charge, close, open, trip, trip-free, and antipump features shall function as designed.
6. Minimum pickup for trip and close coils shall be in accordance with manufacturer's published data. In the absence of manufacturer's data, refer to Table 100.20.

* Optional



7. INSPECTION AND TEST PROCEDURES

7.6.1.3 Circuit Breakers, Air, Medium-Voltage (*continued*)

7. Power-factor or dissipation-factor values shall be compared with previous test results of similar breakers or manufacturer's published data.
8. Power-factor or dissipation-factor and capacitance values should be within ten percent of nameplate rating for bushings. Hot collar tests are evaluated on a milliamperere/milliwatt loss basis, and the results should be compared to values of similar bushings.
9. If no evidence of distress or insulation failure is observed by the end of the total time of voltage application during the overpotential test, the circuit breaker is considered to have passed the test.
10. The blowout coil circuit should exhibit continuity.
11. Heaters should be operational.
12. The results of instrument transformer tests shall be in accordance with Section 7.10.

* Optional

