OVERHAUL DESCRIPTION

ITEM NAME CIRCUIT BREAKER

STOCK NUMBER 5925-01-583-8452 **SHELF LIFE CD** 0

PART NUMBER MDS6163WEA-1652ANAA6YNNNAX

USED ON 270 WMEC SWITCHBOARDS

Items as received by the contractor must be complete and of the proper cited part number. Discrepancies shall be reported to the Coast Guard Contracting Officer.

OVERHAUL REQUIREMENTS:

1. Scope: This description covers the inspection, overhaul & testing of the 270 WMEC Ships Service Diesel Generators, Emergency Diesel Generator and Bus Tie circuit breakers described below for SFLC stock replenishment.

1.2 The circuit breaker is 1600 Amp Eaton Cutler Hammer Magnum DS breaker, part number MDS6163WEA-1652ANAA6YNNNAX. The breaker is delivered for overhaul services is intended to be a complete unit. Contractor shall notify the Coast Guard Contracting Officer of any missing components or, otherwise, questionable condition that may hinder the overhaul process.

1.3 The overhaul requirements described herein are considered basic and are not intended to replace or eliminate any procedures, controls, examinations or tests normally employed by the contractor to assure the quality of the product. Overhaul is intended to restore the circuit breaker to a condition equal to that of an identical new circuit breaker.

2. Applicable Documents:

a) Technical Manual 2705, Amendment 1, June 2011, Main & Emergency Switchboards, 270 WMEC "A" Class Cutters.
b) Technical Manual 2823A, Amendment 1, Sept 2011, Main & Emergency Switchboards, 270 WMEC "B" Class Cutters.
c) Technical Manual 4936, Amendment 1, January 2011, Magnum-DS Circuit Breakers for SSDG & Emergency Switchboards, 270 WMEC Class Cutters
d) SFLC Standard Specification (SFLC Std Spec) 0000, General Requirements
e) SAE AMS-STD-595 Rev. A, Revised 2017-02, (R) Colors Used in Government Procurement.
f) ANSI/NEMA AB4, 2017, Guidelines for Inspection & Preventive Maintenance of Molded Case Circuit Breakers Used in Commercial & Industrial Applications.
g) ANSI/NEMA C37.50, 2012, Low Voltage AC Power Circuit Breakers Used in Enclosures, Test Procedures.
h) ANSI/UL 489, 10/24/2016, Molded Case Circuit Breakers, Molded-Case Switches & Circuit Breaker Enclosures.
i) U.S. Coast Guard Specification D-000-0100 REV G. (Dtd. 03/06) Bar Coding for U.S.C.G. SFLC Material.
j) DODD 4140.01-M-1, Dated 07 Sept. 2007; Compliance for Defense Packaging: Phytosanitary Requirements for Wood Packaging Material (WPM).
k) The Society for Protective Coatings, SSPC-SP 10, Near White Blast Cleaning, January 2007 edition.
l) ANSI/NCSL Z540-3, Calibration laboratories and Measuring and Test Equipment General Requirements, August 2006.
m) ANSI/ASQ Q9001- 2008, Quality Management Systems - Requirements.
n) MIL-STD-2073-1E, Standard Practice for Military Packaging, Dated 7 January

2011.

2.1 Specification Order of Precedence: In the event of a conflict between the text of this specification and the references cited herein, the text of this specification takes precedence. Nothing in this specification, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. Requirements: The contractor shall provide all labor and materials to perform overhaul & testing services on the circuit breaker.

3.1 Preliminary disassembly and inspection shall be conducted to determine estimated cost of overhaul including material, labor, testing, preservation, packing and marking costs. A detailed estimate shall be submitted to the Coast Guard Contracting Officer for approval prior to the start of overhaul work. Estimate shall include overhaul and testing of the circuit breaker. Overhaul is intended to restore the circuit breaker to a condition that is equal to that of a new circuit breaker.

3.1.1 Estimate shall include, as a minimum, a breakdown of costs for parts, labor, testing and other standard contractor procedures not covered by this description.

3.1.2 Tech Rep. Technicians performing shipboard assessments and inspection, maintenance, and testing ashore shall be employed by the original equipment manufacturer or a firm accredited by the InterNational Electrical Testing Association (NETA). An accredited firm shall use only NETA certified technicians (http://www.netaworld.org/) with calibrated test equipment during the performance of this work item.

3.2 Requirements: The circuit breaker shall be overhauled and tested in accordance with standard practices.

3.2.1 Upon arrival at the Contractor's plant the breaker(s) shall be inspected & tested in accordance with sections 3.5.1 & 3.6. A written report consisting of a complete list of defective parts with OEM part numbers, your cost for each part, and total repair labor hours (with labor rate) shall be submitted. Parts mark up, overhead, G & A and profit shall be listed separately. The total repair cost shall include all calibration and final testing. This report shall be submitted to the Contracting Officer.

3.2.2 Overhaul shall include disassembly and thorough cleaning of all components. Clean accessible circuit breaker internals with manufacturer's approved solvents and lint free cloths. Do not use high pressure air or wire brushes. All other parts worn or damaged beyond manufacturer's tolerances shall be repaired or replaced as determined by the contractor.

3.2.3 Replacement parts used in overhaul shall only be OEM parts. After market, substitute, reclaim or recycled parts are not acceptable and shall not be used.

3.2.4 Inspection. Perform the inspections and take the measurements described below. Report all results, including any adjustments made, on a CFR.

3.2.4.1 If accessible, remove and inspect the arc chutes. Note if an arc chute is severely burned, cracked, or excessively eroded.

3.2.4.2 If accessible, visually inspect all primary contacts for wear,

erosion, and evidence of overheating. Inspect associated insulators for cracks and degradation. Determine whether the condition of one or more contacts or insulators meets the criteria for renewal in accordance with manufacturer's guidelines.

3.2.5 If removed, reinstall the arc chutes and torque all fasteners in accordance with manufacturer's instructions.

3.2.6 Inspect the primary and secondary disconnects (stabs) for wear and erosion. For a circuit breaker with finger type primary disconnects, check that the proper force is applied when a dummy bar, representative of the mating stationary disconnect, is inserted.

3.2.7 Inspect electrical switches, solenoids, relays, wiring, and motors for excessive wear and damage. Perform an insulation resistance check of all control wiring using a 500 VDC test voltage. Isolate and identify any wiring or component with insulation resistance of less than 1 Mega-ohm to ground.

3.2.7 For a circuit breaker equipped with a spring charging motor, verify that the motor cutoff switch is aligned in accordance with manufacturer's instructions.

3.3 Disposition: The Coast Guard shall determine the disposition of any circuit breaker delivered for repair that is found to be not suitable for repair for whatever reason.

3.4 Workmanship: The circuit breaker shall cleaned, overhauled, fully assembled, calibrated and tested as required herein.

3.5 Testing:

3.5.1 Testing Requirements: After completion of overhaul, contractor shall conduct the following described tests. All tests shall be witnessed by a Coast Guard Quality Assurance Representative (QAR). All testing shall be accomplished on contractor supplied calibrated test equipment. Any failed circuit breaker shall be repaired and re-tested as necessary until a successful test is achieved.

3.5.2 After satisfactory visual inspection and completion of any authorized repair work, test each circuit breaker listed in the table below as directed in this section.

3.5.2.1 Perform the following tests of ANSI/NEMA AB 4:

a) Mechanical operation
b) Insulation resistance
c) Individual pole resistance (millivolts drop)
d) Inverse-time overcurrent trip (not applicable to non-automatic switches)
e) Instantaneous overcurrent trip
f) Rated hold-in current

3.5.2.2 Short-time overcurrent trip. This test is applicable only if the circuit breaker is equipped with a short-time delay trip. The operation of the short-time delay unit should be within 90% and 125% of the overcurrent setting of the circuit breaker as shown on the manufacturer's time-current curves.

3.5.2.3 Ground fault trip. The circuit breaker should not be equipped with a ground fault trip. If such is installed, submit a CFR noting the discrepancy.

3.5.2.4 Dielectric test. Perform a dielectric test on each 480 or 600 volt rated circuit breaker where the case was opened for repair or the circuit breaker was obtained through non-OEM authorized supply channels. The dielectric test should be conducted at an AC test voltage of 1568 (480 volt rating) or 1760 volts (600 volt rating) or at 2500 volts DC for 1 minute withstand. Conduct the dielectric test for each of the following conditions:

a) Each pole (line to load terminal) with the circuit breaker open
b) Each pair of line to line terminals with the circuit breaker closed
c) Each line terminal to ground with the circuit breaker open
d) Each pole to ground with the circuit breaker closed

3.5.2.5 For each circuit breaker accessory, perform the applicable tests of ANSI/NEMA AB 4, Section 7. Review the Table 1 configuration below for each circuit breaker and submit a CFR for model number discrepancies as well as any missing or extra accessory. When performing ANSI/NEMA AB 4, Section 7.3, use a variable voltage control power source and voltmeter to measure dropout and pickup voltages of the undervoltage release coil. Dropout voltage shall be between 15% and 60% of the coil voltage rating; pickup shall occur between 30% and 85%.

3.5.2.6 Record the following data for each circuit breaker that was tested:.

a) Circuit breaker model and serial number
b) Circuit identifier or position
c) Test data and results
d) Test technician name and date of test
e) Name and address of testing laboratory

3.5.2.7 Update the label on the circuit breaker case, as necessary, so that it accurately describes the circuit breaker configuration and installed accessories. Apply a sticker showing the name of the testing laboratory along with the date of the test.

3.5.3 Test Report: Test results shall be documented on a report. A copy of the test report shall be packed with the tested breaker assembly and a copy shall be turned over to the Coast Guard Quality Assurance Representative. Report shall contain the following information as a minimum:

a. Contractor name.
b. Contract number.
c. Circuit Breaker Model & Serial Numbers
d. Date of test.

e. Description of each test conducted and results of each test.
f. Name of the person conducting the testing.

3.6 Calibration: All test equipment and meters shall be calibrated and have a current calibration sticker. Calibration shall be traceable to National standards.

3.7 Assembly: Overhauled breaker assemblies shall be delivered to the Coast Guard completely assembled and ready for installation. Contractor shall preserve, package and mark each circuit breaker in accordance with part 5 below.

3.7.1 Contractor shall supply a waterproof instruction sheet containing the manufactured alignment procedure. The sheet shall be placed with the breaker assembly inside a polyurethane bag required in part 5.1.

3.8 Responsibility for Inspection: The Contractor shall be responsible for the performance of all inspection requirements specified herein. The Contractor shall provide space, personnel and test equipment for the conduct of all inspection requirements. All inspection and testing shall be performed at the Contractors facility prior to the Coast Guards acceptance of the contracted items. The Coast Guard reserves the right to verify or have performed any of the inspections set forth herein where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

3.9 Inspections & Notification: The contractor shall notify the Coast Guard Contracting Officer, at least ten days prior to the scheduled commencement of any inspections required by this statement of work.

4. Quality Assurance:

4.1 General: The Contractor is responsible for the conformance and overall quality of each item offered to the Coast Guard for acceptance or approval.

4.2 Inspections & Tests: The inspections & tests required herein are the minimum necessary and are not intended to replace any controls, examinations, or tests normally employed by the contractor to assure the quality of the product. The following are required:

a) Test requirements described in part 3.5.
b) Visual inspection of the paint coat on the frame.
c) Inspection of packaging and marking.
d) Operational Test

4.3 Calibration System: The Contractor shall be required to maintain a test equipment calibration program in compliance with ANSI/NCSL Z540-1. The program shall be documented and traceable to the National Institute of Standards (NIST). The calibration system records shall be maintained for inspection for the duration of any contract referencing this specification

4.4 Test & Inspection Reports: A copy of any standard contractor test or inspection report shall be turned over to the Coast Guard Contracting Officer.

5. Preservation Packaging and Marking:

5.1 Preservation: Any overhauled circuit breaker is intended for warehouse storage and not for immediate installation. Therefore, it is critical that the contractor ensures that the overhauled circuit breaker undergo the below preservation requirements:

a) Circuit breaker shall be sealed in bag or wrapped in plastic.

5.2 Packaging: Each overhauled circuit breaker shall be individually packaged in its own enclosed wooden box. The box shall be assembled with stainless steel wood screws. Circuit breaker shall be bolted to the inside of the box and shall be constructed in such a manner as to prevent the circuit breaker from shifting within. Box shall be capable of protecting the circuit breaker from damage during multiple shipments by commercial carrier.

5.3 Marking: Each preserved, packed, and packaged item shall be marked in the upper left-hand side of the two longest sides, (two opposite sides if square) of each box, carton, package, etc. The lettering shall be black painted stencil and permanently affixed to each container. The lettering shall be at least 1" high, and be applied on a highly contrasting white painted background.

5.3.1 This marking shall consist of the STOCK NUMBER, ITEM NAME, PART NUMBER, SERIAL NUMBER, CONTRACT NUMBER, SHIPPING WEIGHT (in lbs.), CONDITION CODE, UNIT OF ISSUE with QUANTITY (1EA) and the words COAST GUARD SFLC MATERIAL CONDITION 'A' REUSABLE CONTAINER, DO NOT DESTROY, REMOVE BOLTS, LIFT CRATE FROM SKID.

5.3.2 See below for marking layout:

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STOCK NUMBER        5925-01-583-8452
ITEM NAME                Circuit Breaker
PART NUMBER        MDS6163WEA-1652ANAA6YNNNAX
SERIAL NUMBER        (As determined)
CONTRACT NUMBER  (See Contract)
SHIPPING WEIGHT  (As determined)
CONDITION CODE        CONDITION A
QUANTITY & UNIT OF ISSUE   1-EA
OTHER DATA AS DIRECTED
                              COAST GUARD SFLC MATERIAL,
                              REUSABLE CONTAINER, DO NOT DESTROY
                              REMOVE BOLTS, LIFT CRATE SKID
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5.4 Bar Coding: Bar coding shall be supplied on all packages.

5.4.1 All bar coded labels shall be in accordance with SFLC specification D-00-0100 Rev. G

1. The actual labels shall be Type 'V', Grade 'A', Style '2', Composition 'B' with plastic laminate.

2. Each label shall contain encoded data for the Stock Number, part number, and Contract Number.

WARRANTY:

____ A. Standard Manufacturer's Warranty

_X_ B. Item being repaired as an "onboard repair" or a "system stock" item and will be put into inventory. NOT FOR IMMEDIATE INSTALLATION. Contractor must guarantee item against defects that lead to failure for **90** days after installation for a period of up to two (2) years after delivery to Coast Guard.

GOVERNMENT ACCEPTANCE:

Acceptance will be made at destination by a Government representative. Acceptance will be contingent upon the representative's verification of no damage in transit, correctness and completeness of order and contractor's conformance to preservation/packaging, packing and marking requirements.

PRESERVATION / PACKAGING:

X A. Each unit shall be individually preserved and wrapped for protection against deterioration for a period of two (2) years minimum.

___ B. See Attachments

PACKAGING AND MARKING FOR SHIPMENT:

X A. Each unit shall be packed individually in it's own wooden box which shall be capable of providing adequate protection to the item during multiple shipments. Mark each box in legible black print lettering with the following information:

NATIONAL STOCK NUMBER	5925-01-583-8452
ITEM NAME	CIRCUIT BREAKER
PART NUMBER	MDS6163WEA-1652ANAA6YNNNAX
GOVERNMENT ORDER NUMBER	

And the words: "Coast Guard SFLC Material, Condition "A"

___ B. See Attachments

RECOMMENDED SOURCES:

EATON CORP. CUTLER-HAMMER SALES OFE
12216 PARKLAWN DRIVE--POST OFFICE BOX 2146
ROCKVILLE, MARYLAND 20852-1724
CANNOT PURCHASE DIRECTLY FROM OEM

JO-KELL INC.
628 INNOVATION DRIVE
CHESAPEAKE, VA 23320-3846
KELLY.JONES@JOKELL.COM
KELLY JONES - 757-523-8773
757-213-5168

CALIFORNIA BREAKERS, INC CBIONE
2490 GRAND AVE.
VISTA, CA. 92081-7804
SALES@CBIONE.COM
ED@CBIONE.COM
757-642-1628

Cost Estimate for Overhaul **NOT TO EXCEED: $15,877.62**

WRITTEN BY: CRAIG FAW
DATE : 20 NOV 25