ELECTRIC-MOTOR REPAIRER

TRADE DESCRIPTION: Repair, maintain, or install electric motors, wiring, or switches.

TASK PERFORMANCE: Demonstrate knowledge and skills for qualifying as Journeyman. Applicable Job Qualification Requirements will be used as a guide in performing tasks and demonstrating knowledge in the following skill areas. Actual work time must be recorded in the Work Experience Log; each skill area must be completed.

Applicable Ratings/MOS/NEC

USMC MOS: 1120, 1142, 1169

USCG: EM

USN: CE, CTM, EM, EMN, ET, ETN, ETR, ETV

USA MOS: 12P, 881A, 88L, 94A

Related Instruction:
Trade related On-The-Job-Training (OJT) or Any Trade related schools/courses totaling 288 or more hours.

Additional Requirement:
None

Total Hours: 4000

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<th>Skill</th>
<th>Description</th>
<th>Hours</th>
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<tbody>
<tr>
<td>A</td>
<td>INSPECT AND TEST EQUIPMENT</td>
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<td>-- Inspect electrical connections, wiring, relays, charging resistance boxes, and storage batteries, following wiring diagrams.</td>
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-- Inspect and test equipment to locate damage or worn parts and diagnose malfunctions, or read work orders or schematic drawings to determine required repairs.

-- Inspect batteries for structural defects such as dented cans, damaged carbon rods and terminals, and defective seals.

-- Test equipment for overheating, using speed gauges and thermometers.

-- Test conditions, fluid levels, and specific gravities of electrolyte cells, using voltmeters, hydrometers, and thermometers.

-- Test battery charges, and replace or recharge batteries as necessary.

### B ASSEMBLE AND DISASSEMBLY OF EQUIPMENT

-- Assemble electrical parts such as alternators, generators, starting devices, and switches, following schematic drawings and using hand, machine, and power tools.

-- Disassemble defective equipment so that repairs can be made, using hand tools.

-- Reassemble repaired electrical motors to specified requirements and ratings, using hand tools and electrical meters.

-- Remove and replace defective parts such as coil leads, carbon brushes, and wires, using soldering equipment.

-- Bolt porcelain insulators to wood parts to assemble hot stools.

### C TROUBLESHOOT AND REPAIR EQUIPMENT

-- Repair and rebuild defective mechanical parts in electric motors, generators, and related equipment, using hand tools and power tools conduit to complete circuits between boxes.

-- Measure velocity, horsepower, revolutions per minute (rpm), amperage, circuitry, and voltage of units or parts to diagnose problems, using ammeters, voltmeters, wattmeters, and other testing devices.

-- Rewire electrical systems, and repair or replace electrical accessories.

-- Lubricate moving parts.

-- Reface, ream, and polish commutators and machine parts to specified tolerances, using machine tools.

-- Adjust working parts, such as fan belts, contacts, and springs, using hand tools and gauges.

-- Clean cells, cell assemblies, glassware, leads, electrical connections, and battery poles, using scrapers, steam, water, emery cloths, power grinders, or acid.

-- Cut and form insulation, and insert insulation into armature, rotor, or stator slots.
- Repair and operate battery-charging equipment.
- Lift units or parts such as motors or generators, using cranes or chain hoists, or signal crane operators to lift heavy parts or subassemblies.

### D MAINTAIN EQUIPMENT

- Solder, wrap, and coat wires to ensure proper insulation.
- Weld, braze, or solder electrical connections.
- Scrape and clean units or parts, using cleaning solvents and equipment such as buffing wheels.
- Rewind coils on cores in slots, or make replacement coils, using coil-winding machines.
- Set machinery for proper performance, using computers.

Drain and filter transformer oil and refill transformers with oil until coils are submerged.
- Position and level battery cells, anodes, or cathodes, using hoists or leveling jacks, or signal other workers to perform positioning and leveling.
- Verify and adjust alignments and dimensions of parts, using gauges and tracing lathes.
- Pour compounds into transformer-case terminal openings to seal out moisture.
- Clean, rinse, and dry transformer cases, using boiling water, scrapers, solvents, hoses, and cloths.
- Steam-clean polishing and buffing wheels to remove abrasives and bonding materials, and spray, brush, or recoat surfaces as necessary.

### E ADMINISTRATIVE

- Record repairs required, parts used, and labor time.
- Maintain stocks of parts.
- read service guides to find information needed to perform repairs.