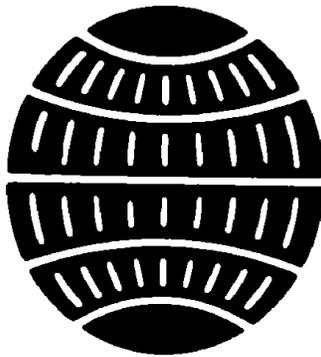


CHAPTER 29



ELECTRICIAN'S MATE (EM)

NAVPERS 18068-29G

CH-76

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NAVY ENLISTED OCCUPATIONAL STANDARDS

FOR

ELECTRICIAN'S MATE (EM)



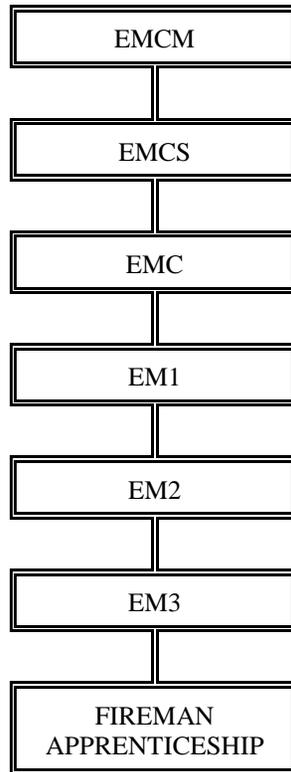
SCOPE OF RATING

Electrician's Mates (EM) operate and control generators, switchboards, control equipment, and electrical equipment associated with engineering plants; operate and perform organizational and intermediate maintenance on power and lighting circuits, electrical fixtures, motors, generators, voltage and frequency regulators, controllers, distribution switchboards and other electrical equipment; test for short circuits, grounds or other casualties; repair and/or rebuild electrical equipment, including solid state circuitry elements.

These Occupational Standards are to be incorporated in Volume I, Part B, of the Manual of Navy Enlisted Manpower and Personnel Classifications and Occupational Standards (NAVPERS 18068F) as Chapter 29.

GENERAL INFORMATION

CAREER PATTERN



Normal path of advancement to Chief Warrant Officer and Limited Duty Officer categories can be found in OPNAVINST 1420.1.

For rating entry requirements, refer to MILPERSMAN 1306-618.

SAFETY

The observance of Operational Risk Management (ORM) and proper safety precautions in all areas is an integral part of each billet and the responsibility of every Sailor; therefore, it is a universal requirement for all ratings.

Job Title**Electrical Systems Maintainer****Job Code****003699****Job Family**

Installation, Maintenance, and Repair

NOC

TBD

Short Title (30 Characters)

ELECTRICAL SYSTEMS MAINTAINER

Short Title (14 Characters)

ELEC SYS MAINT

Pay Plan

Enlisted

Career Field

EM

Other Relationships and Rules

NEC UXXX series and other NECs as assigned

Job Description

Electrical Systems Maintainers perform operations and preventative maintenance of electrical distribution systems, motors and controllers, electrical generators, lighting systems, alarm and indicating systems, machinery vibration analysis equipment and other electrical and electronic support equipment; propulsion plant and auxiliary equipment; and other equipment essential for the movement of naval tactical forces.

DoD Relationship**O*NET Relationship****Group Title**

Electric Power

DoD Code

166200

Occupation Title

Electrical and Electronics
Repairers, Commercial and
Industrial Equipment

SOC Code

49-2094.00

Job Family

Installation, Maintenance,
and Repair

Skills*Reading Comprehension**Equipment Maintenance**Coordination**Quality Control Analysis**Systems Evaluation**Time Management**Writing**Critical Thinking**Instructing**Management of Material Resources***Abilities***Written Comprehension**Selective Attention**Problem Sensitivity**Category Flexibility**Finger Dexterity**Information Ordering**Control Precision**Deductive Reasoning**Fluency of Ideas**Near Vision***AUXILIARY ELECTRICAL EQUIPMENT****Paygrade****Task Type****Task Statements**

E4

CORE

Calibrate electronic measurement instruments (e.g. gauges, switches)

E4

CORE

Conduct preventive maintenance of heating elements

E4

CORE

Conduct preventive maintenance on air compressor electrical components

E4

CORE

Conduct preventive maintenance on air conditioning system electrical components

E4

CORE

Conduct preventive maintenance on alarm system components

E4

CORE

Conduct preventive maintenance on battery support systems

E5

CORE

Conduct preventive maintenance on boiler electrical components

E4

CORE

Conduct preventive maintenance on chilled water system components

E4

CORE

Conduct preventive maintenance on Collection, Holding, and Transfer (CHT) system electrical components

E5

CORE

Conduct preventive maintenance on degaussing system components

E4

CORE

Conduct preventive maintenance on dehydrator electrical components

E4

CORE

Conduct preventive maintenance on electrically-operated valve components

E4

CORE

Conduct preventive maintenance on engine electrical components

E5

CORE

Conduct preventive maintenance on fire protection system electrical components

AUXILIARY ELECTRICAL EQUIPMENT (CONT'D)

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Conduct preventive maintenance on galley equipment electrical components
E5	CORE	Conduct preventive maintenance on generator governor system electrical components
E4	CORE	Conduct preventive maintenance on laundry equipment electrical components
E4	CORE	Conduct preventive maintenance on mess deck equipment electrical components
E4	CORE	Conduct preventive maintenance on potable water systems
E7	CORE	Conduct preventive maintenance on precipitator components
E4	CORE	Conduct preventive maintenance on Programmable Logic Controllers (PLC)
E4	CORE	Conduct preventive maintenance on refrigeration system electrical components
E4	CORE	Conduct preventive maintenance on salinity indicating system components
E4	CORE	Conduct preventive maintenance on scullery equipment electrical components
E5	NON-CORE	Conduct preventive maintenance on shaft speed sensing, indication, and Engine Order Telegraph (EOT) components
E4	CORE	Conduct preventive maintenance on ship's heating system electrical components
E5	CORE	Conduct preventive maintenance on steering control system electrical components
E4	CORE	Conduct preventive maintenance on storage batteries
E5	NON-CORE	Conduct preventive maintenance on ultrasonic cleaner components
E4	CORE	Conduct preventive maintenance on ventilation system electrical components
E4	CORE	Conduct preventive maintenance on welding equipment electrical components

ELECTRICAL INSTALLATIONS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Inspect cableways

ELEVATORS AND CONVEYORS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Conduct preventive maintenance on control stations
E4	CORE	Conduct preventive maintenance on conveyor electrical components
E4	CORE	Conduct preventive maintenance on elevator and dumbwaiter electrical components

LIFTING EQUIPMENT

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Conduct preventive maintenance on capstan electrical components
E4	CORE	Conduct preventive maintenance on crane electrical components
E4	CORE	Conduct preventive maintenance on electrical winch components
E4	CORE	Conduct preventive maintenance on hoist electrical components
E4	CORE	Conduct preventive maintenance on windlass electrical components

LIGHTING SYSTEMS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Conduct preventive maintenance on flight deck lighting system components
E4	CORE	Conduct preventive maintenance on general lighting system components
E4	CORE	Conduct preventive maintenance on navigation and signal lighting system components

MOTORS AND GENERATORS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Conduct preventive maintenance on Alternating Current (AC) motors
E4	CORE	Conduct preventive maintenance on Direct Current (DC) generators
E4	CORE	Conduct preventive maintenance on Direct Current (DC) motors
E4	NON-CORE	Conduct preventive maintenance on Motor Generator (MG) sets
E5	CORE	Conduct preventive maintenance on Ship's Service Generator (SSG) electrical components
E5	CORE	Conduct preventive maintenance on static converter components
E5	CORE	Conduct preventive maintenance on static inverter components

POWER DISTRIBUTION

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Conduct preventive maintenance Arc Fault Detector (AFD) system components
E4	CORE	Conduct preventive maintenance on Automatic Bus Transfer (ABT) components
E4	CORE	Conduct preventive maintenance on casualty power system components
E4	CORE	Conduct preventive maintenance on circuit breakers
E5	CORE	Conduct preventive maintenance on electrical distribution switchboard components
E4	CORE	Conduct preventive maintenance on electrical power monitoring systems
E4	CORE	Conduct preventive maintenance on grounding straps
E4	CORE	Conduct preventive maintenance on magnetic controllers
E4	CORE	Conduct preventive maintenance on Manual Bus Transfer (MBT) components
E4	CORE	Conduct preventive maintenance on power distribution system components
E4	CORE	Conduct preventive maintenance on shore power components
E4	CORE	Conduct preventive maintenance on Uninterruptable Power Supplies (UPS)
E7	CORE	Validate close out of load center, switchboard, and generator

SMALL CRAFT

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Conduct daily boat report for electrical components
E4	CORE	Conduct preventive maintenance on small craft electrical distribution system components
E4	CORE	Conduct preventive maintenance on small craft starter system components
E4	CORE	Repair small craft electrical distribution system components
E4	CORE	Troubleshoot small craft electrical distribution system components

TECHNICAL ADMINISTRATION

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Conduct electrical checks on Master Light Off Checklist Sheet (MLOCS)
E7	CORE	Manage electrical safety programs
E7	CORE	Manage tag out program
E7	CORE	Validate working drawings
E7	CORE	Verify accuracy of administrative programs (e.g. tag out, electrical safety)

Job Title

Electrical Systems Technician

Job Code

003302

Job Family

Installation, Maintenance, and Repair

NOC

TBD

Short Title (30 Characters)

ELECTRICAL SYSTEMS TECHNICIAN

Short Title (14 Characters)

ELEC SYS TECH

Pay Plan

Enlisted

Career Field

EM

Other Relationships and Rules

NEC UXXX series and other NECs as assigned

Job Description

Electrical Systems Technicians perform operations, troubleshooting, and corrective maintenance of electrical distribution systems, motors and controllers, electrical generators, lighting systems, alarm and indicating systems, machinery vibration analysis equipment, other electrical and electronic support equipment and interpret electrical schematics, diagrams and blueprints associated with those systems; propulsion plant and auxiliary equipment; and other equipment essential for the movement of naval tactical forces.

DoD Relationship

Group Title

Electric Power

DoD Code

166200

O*NET Relationship

Occupation Title

Electrical and Electronics
Repairers, Commercial and
Industrial Equipment

SOC Code

49-2094.00

Job Family

Installation, Maintenance,
and Repair

Skills

Systems Evaluation
Systems Analysis
Repairing
Time Management
Coordination
Quality Control Analysis
Instructing
Monitoring
Speaking
Active Learning

Abilities

Finger Dexterity
Deductive Reasoning
Visualization
Fluency of Ideas
Information Ordering
Oral Expression
Problem Sensitivity
Selective Attention
Manual Dexterity
Written Comprehension

AUXILIARY ELECTRICAL EQUIPMENT

Paygrade

Task Type

Task Statements

E4	CORE	Calibrate electronic measurement instruments (e.g. gauges, switches)
E5	CORE	Repair air compressor electrical components
E5	CORE	Repair air conditioning system electrical components
E4	CORE	Repair alarm system components
E5	CORE	Repair battery support systems
E5	CORE	Repair boiler electrical components
E4	CORE	Repair chilled water system components
E5	CORE	Repair Collection, Holding, and Transfer (CHT) system electrical components
E6	CORE	Repair degaussing system components
E5	CORE	Repair dehydrator electrical components
E5	CORE	Repair electrically-operated valve components
E5	CORE	Repair engine electrical components
E5	CORE	Repair fire protection system electrical components
E4	CORE	Repair galley equipment electrical components
E6	CORE	Repair generator governor system electrical components
E4	CORE	Repair heating elements

AUXILIARY ELECTRICAL EQUIPMENT (CONT'D)

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Repair laundry equipment electrical components
E4	CORE	Repair mess deck equipment electrical components
E4	CORE	Repair potable water systems
E7	CORE	Repair precipitator components
E4	CORE	Repair Programmable Logic Controllers (PLC)
E5	CORE	Repair refrigeration system electrical components
E5	CORE	Repair salinity indicating system components
E4	CORE	Repair scullery equipment electrical components
E5	NON-CORE	Repair shaft speed sensing, indication, and Engine Order Telegraph (EOT) components
E4	CORE	Repair ship's heating system electrical components
E5	CORE	Repair ship's steering control system electrical components
E5	NON-CORE	Repair ultrasonic cleaner components
E4	CORE	Repair ventilation system electrical components
E4	CORE	Repair welding equipment electrical components (e.g., ship force capable repairs)
E5	CORE	Troubleshoot air compressor electrical components
E5	CORE	Troubleshoot air conditioning system electrical components
E4	CORE	Troubleshoot alarm system components
E5	CORE	Troubleshoot battery support systems
E5	CORE	Troubleshoot boiler electrical components
E4	CORE	Troubleshoot chilled water system components
E4	CORE	Troubleshoot Collection, Holding, and Transfer (CHT) system electrical components
E5	CORE	Troubleshoot degaussing system components
E5	CORE	Troubleshoot dehydrator electrical components
E5	CORE	Troubleshoot electrically-operated valve components
E5	CORE	Troubleshoot engine electrical components
E5	CORE	Troubleshoot fire protection system electrical components
E4	CORE	Troubleshoot galley equipment electrical components
E5	CORE	Troubleshoot generator governor system electrical components
E4	CORE	Troubleshoot laundry equipment electrical components
E4	CORE	Troubleshoot mess deck equipment electrical components
E4	CORE	Troubleshoot preventative maintenance of heating elements
E4	CORE	Troubleshoot potable water systems
E5	CORE	Troubleshoot precipitator components
E4	CORE	Troubleshoot Programmable Logic Controllers (PLC)
E5	CORE	Troubleshoot refrigeration system electrical components
E5	CORE	Troubleshoot salinity indicating system components
E4	CORE	Troubleshoot scullery equipment electrical components

AUXILIARY ELECTRICAL EQUIPMENT

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	NON-CORE	Troubleshoot shaft speed sensing, indication, and Engine Order Telegraphic (EOT) components
E4	CORE	Troubleshoot ship's heating system electrical components
E5	CORE	Troubleshoot ship's steering control system electrical components
E5	NON-CORE	Troubleshoot ultrasonic cleaner components
E4	CORE	Troubleshoot ventilation system electrical components
E4	CORE	Troubleshoot welding equipment electrical components (e.g., ship force capable repairs)

ELECTRICAL INSTALLATIONS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Disconnect electrical equipment
E4	CORE	Install electrical equipment upgrades
E4	CORE	Install hardwired electrical equipment
E4	CORE	Install permanent cables
E4	CORE	Isolate damaged electrical equipment
E4	CORE	Remove dead ended cables
E4	CORE	Repair damaged electrical equipment
E4	CORE	Solder electrical leads to equipment

ELEVATORS AND CONVEYORS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Repair control stations
E4	CORE	Repair conveyor electrical components
E4	CORE	Repair elevator and dumbwaiter electrical components
E4	CORE	Troubleshoot control stations
E4	CORE	Troubleshoot conveyor electrical components
E4	CORE	Troubleshoot elevator and dumbwaiter electrical components

LIFTING EQUIPMENT

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Repair capstan electrical components
E5	CORE	Repair crane electrical components
E4	CORE	Repair electrical winch components
E5	CORE	Repair hoist electrical components
E5	CORE	Repair windlass electrical components
E4	CORE	Troubleshoot capstan electrical components
E5	CORE	Troubleshoot crane electrical components
E4	CORE	Troubleshoot electrical winch components
E5	CORE	Troubleshoot hoist electrical components
E5	CORE	Troubleshoot windlass electrical components

LIGHTING SYSTEMS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Repair flight deck lighting system components
E4	CORE	Repair general lighting system components
E4	CORE	Repair navigation and signal lighting system components
E4	CORE	Troubleshoot flight deck lighting system components
E4	CORE	Troubleshoot general lighting system components
E4	CORE	Troubleshoot navigation and signal lighting system components

MOTORS AND GENERATORS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E7	CORE	Conduct closeout inspections on Ship's Service Generator (SSG)
E5	CORE	Repair Direct Current (DC) generators
E5	NON-CORE	Repair Motor Generator (MG) sets
E5	CORE	Repair Ship's Service Generator (SSG) electrical components
E5	CORE	Repair static converter components
E5	CORE	Repair static inverter components
E7	CORE	Supervise maintenance on Ship's Service Generator (SSG) electrical components
E5	CORE	Troubleshoot Direct Current (DC) generators
E5	NON-CORE	Troubleshoot Motor Generator (MG) sets
E5	CORE	Troubleshoot Ship's Service Generator (SSG) electrical components
E5	CORE	Troubleshoot static converter components
E5	CORE	Troubleshoot static inverter components

POWER DISTRIBUTION

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Perform shore power rigging and unrigging
E5	CORE	Repair Arc Fault Detector (AFD) system components
E5	CORE	Repair Automatic Bus Transfer (ABT) components
E4	CORE	Repair casualty power system components
E4	CORE	Repair circuit breakers
E5	CORE	Repair electrical distribution switchboard components
E5	CORE	Repair electrical power monitoring systems
E4	CORE	Repair magnetic controllers
E4	CORE	Repair Manual Bus Transfer (MBT) components
E5	CORE	Repair power distribution system components
E5	CORE	Repair Uninterruptable Power Supplies (UPS)
E7	CORE	Supervise electric plant dynamic testing
E7	CORE	Supervise shore power rigging and unrigging
E7	CORE	Test casualty power system
E5	CORE	Troubleshoot Arc Fault Detector (AFD) system components
E5	CORE	Troubleshoot Automatic Bus Transfer (ABT) components
E4	CORE	Troubleshoot casualty power system components

POWER DISTRIBUTION (CONT'D)

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Troubleshoot circuit breakers
E5	CORE	Troubleshoot electrical distribution switchboard components
E5	CORE	Troubleshoot electrical power monitoring systems
E4	CORE	Troubleshoot magnetic controllers
E4	CORE	Troubleshoot Manual Bus Transfer (MBT) components
E5	CORE	Troubleshoot power distribution system components (e.g. ground isolation)
E5	CORE	Troubleshoot Uninterruptable Power Supplies (UPS)
E7	CORE	Validate close out of load center, switchboard, and generator

SMALL CRAFT

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Repair small craft starter system components
E4	CORE	Troubleshoot small craft starter system components

TECHNICAL ADMINISTRATION

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E6	NON-CORE	Authorize Quality Assurance (QA) repair forms
E7	CORE	Conduct command tag out training
E4	CORE	Conduct electrical checks on Master Light Off Checklist Sheet (MLOCS)
E4	CORE	Conduct electrical safety checks on personnel electronic equipment
E5	CORE	Conduct electrical safety training
E5	CORE	Generate working drawings
E4	CORE	Log wire removals and replacements
E7	CORE	Manage electrical safety programs
E7	CORE	Manage tag out program
E5	CORE	Train Repair Party Electricians (RPE)
E7	CORE	Validate Formal Work Packages (FWP) for motor rewind
E5	NON-CORE	Validate Quality Assurance (QA) repair forms
E7	CORE	Validate working drawings
E7	CORE	Verify completion of electrical checks on Master Light Off Checklist Sheet (MLOCS)