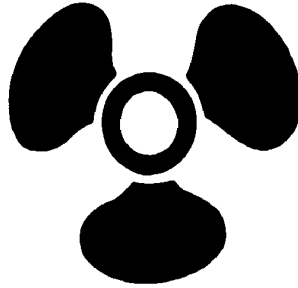


CHAPTER 51



MACHINIST'S MATE, NUCLEAR POWER (MMN)

NAVPERS 18068F-51G
Change 92

Updated: October 2022

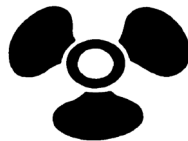
MACHINIST'S MATE, NUCLEAR POWER (MMN)
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NAVY ENLISTED OCCUPATIONAL STANDARD

FOR

MACHINIST'S MATE, NUCLEAR POWER (MMN)



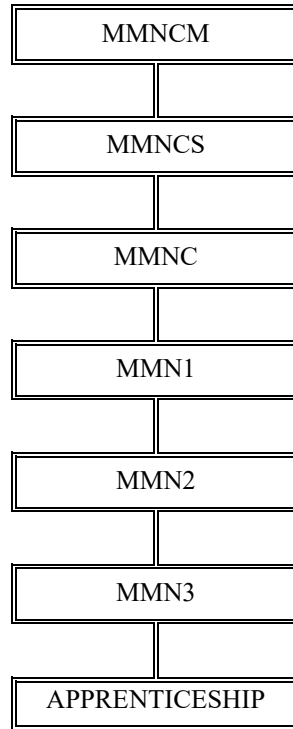
SCOPE OF RATING

Machinist's Mates, Nuclear Power (MMN) operate and maintain Naval Nuclear propulsion plants and associated equipment; supervise and administer Naval nuclear propulsion plant operations; apply reactor, electrical, and mechanical theory involved in the operation of the nuclear reactor, steam plant, propulsion plant, and auxiliary equipment; operate and repair systems associated with reactor plants, propulsion plants, and auxiliary support systems (air compressors, freshwater production plants, steam turbines, shaft line components, air conditioning equipment, feed and condensate, steam, hydraulic, seawater systems, air, potable water, lubricating oil and oil purification, reactor auxiliary and support systems pumps, valves, and heat exchangers); perform tests, transfers, and inventories of lubricating oils, fuels, and water; and maintain records and reports on both submarine and surface ships.

This Occupational Standard is to be incorporated in Volume I, Part B, of the Manual of Navy Enlisted Manpower and Personnel Classifications and Occupational Standards (NAVPERS 18068F) in Chapter 51.

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**Propulsion Plant Mechanical Operator****Job Code****003781****Job Family**

Life, Physical, and Social Science

NOC

TBD

Short Title (30 Characters)

PROPULSION PLANT MECH OP

Short Title (14 Characters)

PPM OPERATOR

Pay Plan

Enlisted

Career Field

MMN

Other Relationships and Rules

NECs NXXX series and other NECs as assigned

Job Description

Propulsion Plant Mechanical Operators operate and perform basic preventive maintenance on propulsion plant mechanical systems, support systems, turbines, pumps, and valves; operate reactor plants, propulsion plants, and auxiliary support systems; monitor operations of the shutdown reactor and propulsion plant; repair and maintain equipment; and perform work critical to the movement of Naval tactical and strategic forces.

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

Nuclear Power

DoD Code

166100

Occupation Title

Nuclear Technicians

SOC Code

19-4051.00

Job Family

Life, Physical, and Social Science

Skills*Quality Control Analysis**Equipment Maintenance**Operation Monitoring**Repairing**Operation and Control**Systems Analysis**Reading Comprehension**Writing**Speaking**Coordination***Abilities***Written Comprehension**Manual Dexterity**Problem Sensitivity**Written Expression**Arm-Hand Steadiness**Oral Expression**Deductive Reasoning**Finger Dexterity**Visual Color Discrimination**Extent Flexibility***ENGINEERING MANAGEMENT****Paygrade**

E4

Task Type

CORE

Task Statements

Maintain small valve maintenance documentation

LABORATORY MANAGEMENT**Paygrade**

E4

Task Type

CORE

Task Statements

Analyze water chemistry samples

E4

CORE

Disestablish radiological controls

E4

CORE

Establish radiological controls

E4

CORE

Grant access to radiological controlled areas

E4

NON-CORE

Maintain chemistry analysis equipment

E4

CORE

Maintain radiological controlled area records

E4

CORE

Maintain water chemistry

E5

NON-CORE

Repair chemistry analysis equipment

E4

CORE

Survey radiological controlled areas

QUALITY MAINTENANCE

| <u>Paygrade</u> | <u>Task Type</u> | <u>Task Statements</u> |
|------------------------|-------------------------|-----------------------------------------------------------------------------------------------|
| E4 | CORE | Adjust pump packing |
| E4 | CORE | Adjust reducing valve set points |
| E4 | CORE | Adjust relief valve set points |
| E4 | CORE | Adjust valve packing |
| E4 | NON-CORE | Calibrate mechanical gauges |
| E4 | CORE | Clean propulsion plant systems and components |
| E4 | NON-CORE | Fabricate emergency repair materials (e.g., drill press, lathe, etc.) |
| E4 | CORE | Lubricate propulsion plant systems and components |
| E4 | CORE | Maintain air compressors |
| E5 | CORE | Maintain air condition systems |
| E4 | CORE | Maintain air systems |
| E4 | CORE | Maintain bilge and oily water systems |
| E4 | CORE | Maintain condensate and feed systems |
| E4 | CORE | Maintain demineralized water systems |
| E4 | CORE | Maintain emergency fill systems |
| E4 | CORE | Maintain fresh water cooling systems |
| E4 | CORE | Maintain fresh water production units |
| E4 | CORE | Maintain fuel oil systems |
| E4 | CORE | Maintain hydraulic systems |
| E4 | CORE | Maintain lube oil purification systems |
| E4 | CORE | Maintain lube oil systems |
| E4 | NON-CORE | Maintain machinery repair equipment (e.g., drill press, lathe, etc.) |
| E4 | CORE | Maintain non-nuclear mechanical components (e.g., compressors, turbines, pumps, valves, etc.) |
| E4 | CORE | Maintain nuclear mechanical systems |
| E4 | CORE | Maintain potable water systems |
| E4 | CORE | Maintain seawater cooling systems |
| E5 | CORE | Maintain shaft line components |
| E5 | CORE | Maintain shielding systems |
| E4 | CORE | Maintain steam generation systems |
| E4 | CORE | Maintain steam systems |
| E4 | CORE | Maintain steam turbines |
| E4 | CORE | Perform lockout tag out procedures |
| E5 | CORE | Repair air compressors |
| E5 | CORE | Repair air condition systems |

QUALITY MAINTENANCE (CONT'D)

| <u>Paygrade</u> | <u>Task Type</u> | <u>Task Statements</u> |
|-----------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| E5 | CORE | Repair air systems |
| E5 | CORE | Repair bilge and oily water systems |
| E5 | CORE | Repair condensate and feed systems |
| E5 | CORE | Repair demineralized water systems |
| E5 | CORE | Repair emergency fill systems |
| E5 | CORE | Repair fresh water cooling systems |
| E5 | CORE | Repair fresh water production units |
| E5 | CORE | Repair fuel oil systems |
| E5 | CORE | Repair hydraulic systems |
| E5 | CORE | Repair lube oil purification systems |
| E5 | CORE | Repair lube oil systems |
| E5 | NON-CORE | Repair machinery repair equipment (e.g., drill press, lathe, etc.) |
| E5 | CORE | Repair non-nuclear mechanical components (e.g., compressors, turbines, pumps, valves, etc.) |
| E5 | CORE | Repair nuclear mechanical systems |
| E5 | CORE | Repair potable water systems |
| E4 | CORE | Repair propulsion plant systems and components |
| E5 | CORE | Repair seawater cooling systems |
| E5 | CORE | Repair shaft line components |
| E5 | NON-CORE | Repair shielding systems |
| E5 | CORE | Repair steam generation systems |
| E5 | CORE | Repair steam systems |
| E5 | CORE | Repair steam turbines |
| E5 | CORE | Replace pump packing |
| E5 | CORE | Test non-nuclear systems (e.g., freshwater distribution, freshwater circulation systems, high pressure air and service air systems, etc.) |
| E5 | CORE | Test nuclear systems |
| E5 | CORE | Troubleshoot non-nuclear mechanical components (e.g., compressors, turbines, pumps, valves, etc.) |

SYSTEMS OPERATIONS

| <u>Paygrade</u> | <u>Task Type</u> | <u>Task Statements</u> |
|-----------------|------------------|---------------------------------------------------------------------------------------------------------|
| E4 | NON-CORE | Adjust electric plant lineups |
| E4 | CORE | Align air compressors (e.g., startups, shutdowns, normal and casualty operations) |
| E4 | CORE | Align air condition systems (e.g., startups, shutdowns, normal and casualty operations) |
| E4 | CORE | Align air systems (e.g., change reducer settings, system lineup alterations, etc.) |
| E4 | CORE | Align bilge and oily water systems (e.g., pumping bilges, overboard discharge, and casualty operations) |

SYSTEMS OPERATIONS (CONT'D)

| <u>Paygrade</u> | <u>Task Type</u> | <u>Task Statements</u> |
|------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------|
| E4 | CORE | Align condensate and feed systems (e.g., startups, shutdowns, normal and casualty operations) |
| E4 | CORE | Align demineralized water systems (e.g., startups, shutdowns, tank fills, casualty operations, etc.) |
| E4 | CORE | Align emergency fill systems (e.g., startups, shutdowns, normal and casualty operations, etc.) |
| E4 | CORE | Align fresh water cooling systems (e.g., startups, shutdowns, cooling adjustments, normal and casualty operations) |
| E4 | CORE | Align fresh water production units (e.g., startups, shutdowns, etc.) |
| E4 | CORE | Align fuel oil systems (e.g., startup, shutdown, normal and casualty operations) |
| E4 | CORE | Align hydraulic systems (e.g., normal and casualty operations) |
| E4 | CORE | Align lube oil purification systems (e.g., purifier startups, purifier shutdowns, lineups to purify, etc.) |
| E4 | CORE | Align lube oil systems (e.g., startups, shutdowns, normal, and casualty operations) |
| E4 | CORE | Align nuclear mechanical systems (e.g., startup, shutdown, normal and casualty operations, etc.) |
| E4 | CORE | Align potable water systems (e.g., startups, shutdowns, tank fills, water treatment, etc.) |
| E4 | CORE | Align seawater cooling systems (e.g., startups, shutdowns, cross-connects, normal and casualty operations) |
| E4 | CORE | Align shaft line components (e.g., startup, shutdown, normal and casualty operations) |
| E4 | CORE | Align shielding systems (e.g., normal and casualty operations) |
| E4 | CORE | Align steam generation systems (e.g., startups, shutdowns, samplings, blowdowns, etc.) |
| E4 | CORE | Align steam systems (e.g., startups, shutdowns, cross-connects, normal and casualty operations) |
| E4 | CORE | Align water sampling systems (e.g., normal and casualty operations) |
| E4 | CORE | Analyze plant system and component parameters |
| E4 | CORE | Analyze shutdown reactor plant trends |
| E4 | CORE | Draw lube oil sample |
| E4 | CORE | Inspect plant system and component parameters |
| E4 | CORE | Perform main engine throttle operations |
| E4 | CORE | Perform radiological valve operations |

Job Title**Propulsion Plant Mechanical Supervisor****Job Code****003789****Job Family**
Production**NOC**
TBD**Short Title (30 Characters)**
PROPULSION PLANT MECH SUP**Short Title (14 Characters)**
PPM SUPERVISOR**Pay Plan**
Enlisted**Career Field**
MMN**Other Relationships and Rules**
NECs NXXX series and other NECs as assigned**Job Description**

Propulsion Plant Mechanical Supervisors perform advanced mechanical systems operations; apply advanced level maintenance practices to propulsion plant mechanical systems, support systems, turbines, pumps, and valves; supervise operations, advanced maintenance, advanced testing, and training for personnel assigned to machinery divisions; draft correspondence; develop administrative programs; perform risk management; repair and maintain equipment; and perform work critical to the movement of Naval tactical and strategic forces.

DoD Relationship

| | |
|--------------------|-----------------|
| <i>Group Title</i> | <i>DoD Code</i> |
| Nuclear Power | 166100 |

O*NET Relationship

| | | |
|---------------------------------|-----------------|-------------------|
| <i>Occupation Title</i> | <i>SOC Code</i> | <i>Job Family</i> |
| Nuclear Power Reactor Operators | 51-8011.00 | Production |

Skills*Complex Problem Solving**Troubleshooting**Coordination**Operation Monitoring**Management of Personnel Resources**Judgment and Decision Making**Systems Evaluation***Abilities***Deductive Reasoning**Inductive Reasoning**Oral Expression**Written Comprehension**Problem Sensitivity**Information Ordering**Near Vision***ENGINEERING MANAGEMENT****Paygrade****Task Type****Task Statements**

| | | |
|----|------|---------------------------------------------------------------------------------------------------------|
| E6 | CORE | Supervise propulsion plant maintenance operations (e.g., electrical, mechanical, reactor control, etc.) |
| E6 | CORE | Supervise propulsion plant watch section operations |

LABORATORY MANAGEMENT**Paygrade****Task Type****Task Statements**

| | | |
|----|----------|-------------------------------------------|
| E5 | NON-CORE | Troubleshoot chemistry analysis equipment |
|----|----------|-------------------------------------------|

QUALITY MAINTENANCE**Paygrade****Task Type****Task Statements**

| | | |
|----|------|-------------------------------------------|
| E5 | CORE | Troubleshoot air compressors |
| E6 | CORE | Troubleshoot air condition systems |
| E5 | CORE | Troubleshoot air systems |
| E6 | CORE | Troubleshoot bilge and oily water systems |
| E6 | CORE | Troubleshoot condensate and feed systems |
| E5 | CORE | Troubleshoot demineralized water systems |
| E6 | CORE | Troubleshoot emergency fill systems |
| E6 | CORE | Troubleshoot fresh water cooling systems |
| E6 | CORE | Troubleshoot fresh water production units |

QUALITY MAINTENANCE (CONT'D)

| <u>Paygrade</u> | <u>Task Type</u> | <u>Task Statements</u> |
|-----------------|------------------|--------------------------------------------------------------------------|
| E6 | CORE | Troubleshoot fuel oil systems |
| E6 | CORE | Troubleshoot hydraulic systems |
| E5 | CORE | Troubleshoot lube oil purification systems |
| E6 | CORE | Troubleshoot lube oil systems |
| E6 | NON-CORE | Troubleshoot machinery repair equipment (e.g., drill press, lathe, etc.) |
| E6 | CORE | Troubleshoot nuclear mechanical systems |
| E5 | CORE | Troubleshoot potable water systems |
| E6 | CORE | Troubleshoot seawater cooling systems |
| E6 | CORE | Troubleshoot shaft line components |
| E5 | CORE | Troubleshoot shielding systems |
| E6 | CORE | Troubleshoot steam generation systems |
| E6 | CORE | Troubleshoot steam systems |
| E6 | CORE | Troubleshoot steam turbines |

SYSTEMS OPERATIONS

| <u>Paygrade</u> | <u>Task Type</u> | <u>Task Statements</u> |
|-----------------|------------------|---------------------------------------|
| E5 | CORE | Offload fuel oil systems |
| E5 | CORE | Offload lube oil tanks |
| E5 | CORE | Onload fuel oil systems |
| E5 | CORE | Onload lube oil tanks |
| E6 | CORE | Oversee radiological valve operations |

Job Title**Propulsion Plant Mechanical Manager****Job Code****003797****Job Family**

Production

NOC

TBD

Short Title (30 Characters)

PROPULSION PLANT MECH MGR

Short Title (14 Characters)

PPM MANAGER

Pay Plan

Enlisted

Career Field

MMN

Other Relationships and Rules

NECs NXXX series and other NECs as assigned

Job Description

Propulsion Plant Mechanical Managers manage operations, maintenance, and training for personnel assigned to machinery divisions and engineering and reactor departments; review divisional and departmental administrative correspondence; perform divisional/departmental program and training audits; perform risk management; repair and maintain equipment; and perform work critical to the movement of Naval tactical and strategic forces.

DoD Relationship**Group Title**

Nuclear Power

DoD Code

166100

O*NET Relationship**Occupation Title**

First-Line Supervisors of
Production and Operating Workers

SOC Code

51-1011.00

Job Family

Production

Skills*Quality Control Analysis**System Evaluation**Coordination**Systems Evaluation**Critical Thinking**Judgement and Decision Making**Management of Material Resources**Monitoring**Operation Monitoring***Abilities***Problem Sensitivity**Near Vision**Deductive Reasoning**Inductive Reasoning**Information Ordering**Selective Attention**Visualization**Written Comprehension***ENGINEERING MANAGEMENT****Paygrade**

E7

Task Type

NON-CORE

Task Statements

Administer continuous training exams

E7

CORE

Audit engineering and reactor department records

E7

CORE

Manage equipment modifications and modernization

E7

CORE

Verify plant system and component parameters

LABORATORY MANAGEMENT**Paygrade**

E7

Task Type

CORE

Task Statements

Audit chemistry records

E7

CORE

Verify radiological controlled area records

E7

CORE

Verify radiological controlled areas

QUALITY MAINTENANCE**Paygrade**

E7

Task Type

CORE

Task Statements

Inspect shaft line components