

CHAPTER 53



MACHINERY REPAIRMAN (MR)

NAVPERS 18068-53E

CH-65

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NAVY ENLISTED OCCUPATIONAL STANDARDS

FOR

MACHINERY REPAIRMAN (MR)



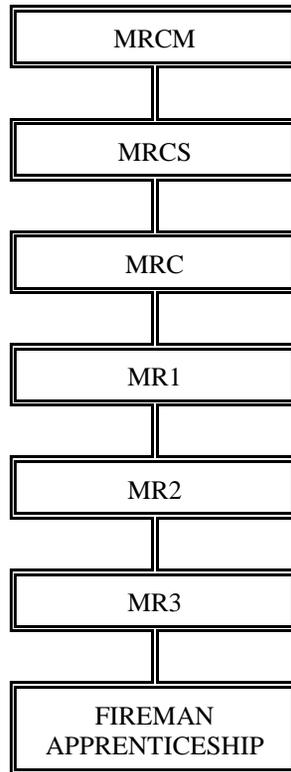
SCOPE OF RATING

Machinery Repairmen (MR) are skilled machinists; manufacture replacement parts to enable repairs or overhaul to ship's engines and auxiliary systems while the ship is out to sea and in port; perform organizational and intermediate maintenance on assigned equipment; skillful use of Computer Numerically Controlled (CNC) machines, Computer Aided Drafting (CAD), lathes, milling machines, boring mills, grinders, power hack saws, drill presses, and other machine tools required to fabricate and manufacture parts and equipment; and utilize portable machinery, hand tools, and measuring instruments to perform work outside the shop

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 53.

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

Machinery Repairman Apprentice

Job Code

003156

Job Family

Production

NOC

TBD

Short Title (30 Characters)

MACHINERY REPAIRMAN APPRENTICE

Short Title (14 Characters)

MR APPRENTICE

Pay Plan

Enlisted

Career Field

MR

Other Relationships and Rules

Not applicable, based upon the NEC assigned to the job (if any).

Job Description

Machinery Repairmen Apprentices manufacture replacement parts and repair or overhaul ship's engines and auxiliary systems; work on deck equipment, including winches and hoists, condensers, and heat exchange devices; occasionally operate main propulsion and auxiliary machinery; perform machine shop and repair duties; repair and operate auxiliary machinery, including calculating time and material needed for machine shop work and repair of auxiliary machinery; draw sketches and prepare specifications for replacement parts; produce replacement parts from sketches and specifications; operate machine shop equipment, such as lathes, drill presses, shapers, bench grinders, milling machines, boring mills, and power hacksaws; work with precision measuring instruments such as micrometers, depth gauges, vernier calipers, gauge blocks, protractors, and dial indicators; operate engravers; and work under the supervision of a mentor while learning the trade

DoD Relationship

Group Title

Machinists

DoD Code

170200

O*NET Relationship

Occupation Title

Machinists

SOC Code

51-4041.00

Job Family

Production

Skills

Equipment Selection

Management of Material Resources

Technology Design

Operation and Control

Repairing

Operation Monitoring

Coordination

Quality Control Analysis

Reading Comprehension

Writing

Abilities

Finger Dexterity

Manual Dexterity

Control Precision

Written Comprehension

Arm-Hand Steadiness

Wrist-Finger Speed

Written Expression

Mathematical Reasoning

Category Flexibility

Flexibility of Closure

FABRICATIONS AND MANUFACTURING

Paygrade

Task Type

Task Statements

E4	CORE	Balance grinding wheels
E4	CORE	Grind machine shop single point tools
E4	CORE	Machine bearing surfaces
E4	CORE	Machine couplings from castings
E5	CORE	Machine impellers from castings
E4	CORE	Machine system zincs
E4	CORE	Machine valve disks
E4	CORE	Machine valve hand wheels from castings
E4	CORE	Manufacture brackets and supports
E4	CORE	Manufacture deck bolts
E4	CORE	Manufacture deck plugs
E4	CORE	Manufacture deck sockets
E4	CORE	Manufacture equipment and system bushings
E4	CORE	Manufacture equipment and system fittings

E4	CORE	Manufacture equipment mandrels
E5	CORE	Manufacture equipment wearing rings
E4	CORE	Manufacture gauge plugs
E4	CORE	Manufacture hatch dogs
E4	CORE	Manufacture machinery pulleys
E4	CORE	Manufacture machinery shafts
E4	CORE	Manufacture machinery shims
E4	CORE	Manufacture machinery spacers
E4	CORE	Manufacture metal and non-metal pins
E4	CORE	Manufacture pad eyes
E4	CORE	Manufacture shaft keys
E4	CORE	Manufacture stanchion bolts
E4	CORE	Manufacture strainer plugs
E4	CORE	Manufacture system flanges
E4	CORE	Manufacture threaded sleeve sounding tubes
E5	CORE	Repair end bell housings

MACHINE OPERATIONS

<u>Pavgrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Cut square and hexagonal holes
E4	CORE	Determine surface finishes using surface roughness scales
E4	CORE	Dial in bores using dial fingers
E4	CORE	Dial in pump casings on horizontal boring mills
E4	CORE	Dial in shafts on lathes
E4	CORE	Dial in shafts on mills
E4	CORE	Disintegrate metal parts
E4	CORE	Drill out system parts
E4	CORE	Machine out-of-round surfaces
E4	CORE	Perform broaching procedures
E4	CORE	Perform draw filing
E4	CORE	Perform indexing procedures
E4	CORE	Perform precision measurements

PRE-MANUFACTURING PREPARATIONS

<u>Pavgrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Calculate areas and volumes
E4	CORE	Conduct equipment pre-operational checks
E4	CORE	Design special tools and adapters
E4	NON-CORE	Identify plastics
E4	CORE	Layout equipment templates
E4	CORE	Layout geometric construction work

E4	CORE	Layout valve flange bolt holes
E4	CORE	Measure clearances
E4	NON-CORE	Read blueprints
E4	CORE	Set up drilling machines

PUMPS AND VALVES

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Repair bearing surfaces
E4	CORE	Repair couplings
E4	CORE	Repair impellers
E4	CORE	Repair pump casing and casing rings
E4	CORE	Repair pump housing surfaces
E4	CORE	Repair pump shafts and sleeves
E4	CORE	Repair pump wearing rings
E4	CORE	Repair strainer bodies
E4	CORE	Repair threads
E4	CORE	Repair valve disks
E4	CORE	Repair valve hand wheels
E4	CORE	Repair valve seats
E4	CORE	Replace damaged or broken studs

QUALITY ASSURANCE

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Prepare Quality Assurance (QA) repair forms

SHOP OPERATIONS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Check surfaces for squareness
E4	CORE	Conduct metal hardness tests
E4	CORE	Conduct metal identification tests
E4	CORE	Engrave miscellaneous equipage
E4	CORE	Maintain precision measuring instrument calibration logs
E4	CORE	Maintain shop equipment
E4	CORE	Maintain tools and calibrated instruments
E4	CORE	Perform layout and bench work
E4	NON-CORE	Perform machine shop mathematics
E4	CORE	Sandblast miscellaneous equipage
E4	CORE	Sharpen drill bits

Job Title**Machinery Repairman Journeyman****Job Code****003381****Job Family**

Production

NOC

TBD

Short Title (30 Characters)

MACHINERY REPAIR JOURNEYMAN

Short Title (14 Characters)

MR JOURNEYMAN

Pay Plan

Enlisted

Career Field

MR

Other Relationships and Rules

May include NEC's 4402, 4404

Job Description

Machinery Repairmen Journeymen are skilled machinists; manufacture replacement parts and repair or overhaul ship's engines and auxiliary systems; work on deck equipment, including winches and hoists, condensers, and heat exchange devices; occasionally operate main propulsion and auxiliary machinery; perform machine shop and repair duties; repair and operate auxiliary machinery, including calculating time and material needed for machine shop work and repair of auxiliary machinery; draw sketches; perform Computer Aided Drafting (CAD); prepare specifications for replacement parts; produce replacement parts from sketches and specifications; operate machine shop equipment, such as lathes, drill presses, shapers, bench grinders, milling machines, boring mills, and power hacksaws; operate Computer Numerically Controlled (CNC) machinery; work with precision measuring instruments such as micrometers, depth gauges, vernier calipers, gauge blocks, protractors, and dial indicators; operate engravers; and are expected to perform work independently and mentor Machinery Repair Apprentices.

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

Machinists

DoD Code

170200

Occupation Title

Machinists

SOC Code

51-4041.00

Job Family

Production

Skills*Equipment Selection**Operation and Control**Management of Material Resources**Repairing**Operation Monitoring**Technology Design**Reading Comprehension**Writing**Coordination**Quality Control Analysis***Abilities***Finger Dexterity**Manual Dexterity**Control Precision**Written Comprehension**Written Expression**Arm-Hand Steadiness**Information Ordering**Wrist-Finger Speed**Flexibility of Closure**Oral Comprehension***FABRICATIONS AND MANUFACTURING****Paygrade****Task Type****Task Statements**

E4

CORE

Balance grinding wheels

E4

CORE

Grind machine shop single point tools

E4

CORE

Machine bearing surfaces

E4

CORE

Machine couplings from castings

E5

CORE

Machine end bell housing surfaces

E5

CORE

Machine pump casing rings

E5

CORE

Machine pump casings

E5

CORE

Machine pump housing surfaces

E5

CORE

Machine pump shaft sleeves

E5

CORE

Machine pump shafts

E5

CORE

Machine pump wearing rings

E5

CORE

Machine strainer bodies

E5

CORE

Machine valve seats

E5

CORE

Machine valve surfaces

E5

CORE

Manufacture bevel gears

E5	CORE	Manufacture helical gears
E4	CORE	Manufacture machinery splines
E5	CORE	Manufacture machinery sprockets
E5	CORE	Manufacture spur gears
E5	CORE	Manufacture stub tooth gears
E5	CORE	Manufacture worm gears
E5	CORE	Manufacture worm wheels

MACHINE OPERATIONS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Determine surface finishes using surface roughness scales
E4	CORE	Dial in bores using dial fingers
E4	CORE	Dial in pump casings on horizontal boring mills
E4	CORE	Dial in shafts on lathes
E4	CORE	Dial in shafts on mills
E5	CORE	Machine angles on vertical turret lathes
E5	CORE	Machine parts using Computer Numerically Controlled (CNC) machines
E4	CORE	Machine parts using milling attachments on lathes
E5	CORE	Operate portable equipment
E5	CORE	Perform Computer Aided Drafting (CAD)/Computer Automated Machining (CAM)
E4	CORE	Perform fly cutting
E4	CORE	Perform precision measurements

PRE-MANUFACTURING PREPARATIONS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Calculate areas and volumes
E4	CORE	Design special tools and adapters
E4	CORE	Draft manufacturing blueprints from sample parts
E4	NON-CORE	Identify plastics
E5	NON-CORE	Operate honing equipment
E5	CORE	Set up Computer Numerically Controlled (CNC) machines
E5	CORE	Set up cylindrical grinders
E4	CORE	Set up flange refacing machines
E5	NON-CORE	Set up planer equipment
E5	NON-CORE	Set up portable electroplating equipment
E5	CORE	Set up surface grinders
E5	CORE	Set up tool and cutter grinders

PUMPS AND VALVES

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Conduct blue checks
E4	CORE	Repair bearing surfaces
E4	CORE	Repair couplings
E4	CORE	Repair impellers
E4	CORE	Repair pump casing and casing rings
E4	CORE	Repair pump housing surfaces
E4	CORE	Repair pump shafts and sleeves
E4	CORE	Repair pump wearing rings
E4	CORE	Repair strainer bodies
E4	CORE	Repair valve disks
E4	CORE	Repair valve hand wheels
E4	CORE	Repair valve seats

QUALITY ASSURANCE

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E6	CORE	Develop Controlled Work Packages (CWP)
E6	CORE	Develop Formal Work Packages (FWP)
E5	CORE	Document Quality Assurance (QA) repair form findings
E4	NON-CORE	Identify controlled materials
E5	CORE	Prepare Quality Assurance (QA) repair forms
E7	CORE	Review Controlled Work Packages (CWP)
E7	CORE	Review Formal Work Packages (FWP)
E5	CORE	Store controlled materials
E5	CORE	Update Quality Assurance (QA) repair forms
E7	CORE	Verify Quality Assurance (QA) repair forms

SHOP OPERATIONS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Analyze equipment malfunctions
E4	CORE	Check surfaces for squareness
E6	NON-CORE	Conduct machine operation seminars
E4	CORE	Conduct metal hardness tests
E4	CORE	Conduct metal identification tests
E4	CORE	Determine surface roughness
E5	CORE	Develop computer-aided machining programs
E6	CORE	Draft production schedules
E7	CORE	Draft shop policies
E5	CORE	Heat treat metals
E7	CORE	Manage production schedules
E4	NON-CORE	Perform machine shop mathematics