

# CHAPTER 53



## MACHINERY REPAIRMAN (MR)

NAVPERS 18068F-53F  
Change 83

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**TABLE OF CONTENTS**  
**MACHINERY REPAIRMAN (MR)**

<b>SCOPE OF RATING</b>	MR-3
<b>GENERAL INFORMATION</b>	MR-4
<b>MACHINERY REPAIR APPRENTICE</b>	MR-5
FABRICATIONS AND MANUFACTURING	MR-5
MACHINE OPERATIONS	MR-6
PRE-MANUFACTURING PREPARATIONS	MR-7
PUMPS AND VALVES	MR-7
QUALITY ASSURANCE	MR-7
SHOP OPERATIONS	MR-8
<b>MACHINERY REPAIR JOURNEYMAN</b>	MR-9
FABRICATIONS AND MANUFACTURING	MR-9
MACHINE OPERATIONS	MR-10
PRE-MANUFACTURING PREPARATIONS	MR-11
PUMPS AND VALVES	MR-12
QUALITY ASSURANCE	MR-12
SHOP OPERATIONS	MR-12

NAVY ENLISTED OCCUPATIONAL STANDARDS  
FOR  
MACHINERY REPAIRMAN (MR)



SCOPE OF RATING

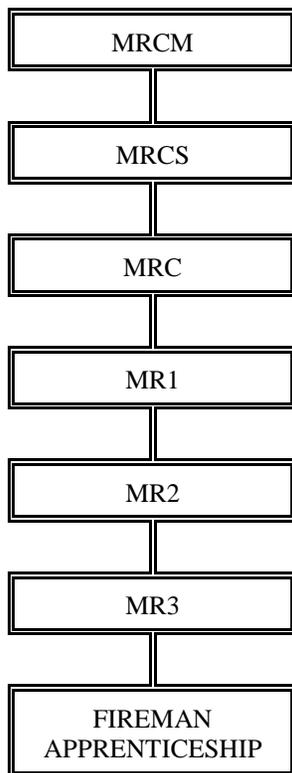
Machinery Repairmen (MR) are skilled machinists; manufacture replacement parts to enable repairs or overhaul to engines, propulsion and auxiliary systems on ships, aircraft, submarines, and various equipment; perform organizational and intermediate maintenance on assigned equipment; skilled in use of Computer Numerically Controlled (CNC) machines, Computer-Aided Design (CAD), lathes, milling machines, boring mills, grinders, power 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.

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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**

NEC UXXX series or other NECs as assigned

**Job Description**

Machinery Repairman Apprentices manufacture replacement parts, repair or overhaul engines, propulsion and auxiliary systems on ships, aircraft, submarines, and various equipment; work on deck equipment; perform machine shop and repair duties utilizing machine shop equipment, such as lathes, drill presses, bench grinders, milling machines, and power saws; calculate time and material needed for machine shop work; produce replacement parts by interpreting blueprints; draw sketches, prepare specifications, and select material utilizing basic metallurgy for replacement parts; work with precision measuring instruments such as micrometers, depth gauges, dial calipers, gauge blocks, protractors, and dial indicators; operate engravers; and work under the supervision of a journeyman machinist.

**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

Repairing

Operation and Control

Quality Control Analysis

Operations Analysis

Installation

Mathematics

Critical Thinking

Operation Monitoring

**Abilities**

Information Ordering

Mathematical Reasoning

Control Precision

Arm-Hand Steadiness

Deductive Reasoning

Written Comprehension

Finger Dexterity

Inductive Reasoning

Manual Dexterity

Perceptual Speed

**FABRICATIONS AND MANUFACTURING**

**Paygrade**

E4

**Task Type**

CORE

**Task Statements**

Grind machine shop single point tools

E4

CORE

Machine bearing surfaces

E4

CORE

Machine couplings from castings

E5

CORE

Machine impellers from castings

E5

CORE

Machine pump casing rings

E5

CORE

Machine pump shaft sleeves

E4

CORE

Machine pump shafts

E4

CORE

Machine system zincs

E4

CORE

Machine threads

E4

CORE

Machine valve disks

E4

CORE

Machine valve hand wheels from castings

E4

CORE

Machine valve seats

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

## FABRICATIONS AND MANUFACTURING (CONT'D)

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Manufacture equipment and system fittings
E4	CORE	Manufacture equipment mandrels
E4	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 machinery splines
E4	CORE	Manufacture metal and non-metal pins
E4	CORE	Manufacture pad eyes
E4	CORE	Manufacture shaft keys
E4	CORE	Manufacture spur gears
E4	CORE	Manufacture stanchion bolts
E4	CORE	Manufacture strainer plugs
E4	CORE	Manufacture system flanges
E5	CORE	Repair end bell housings

## MACHINE OPERATIONS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Assemble components utilizing hydraulic or arbor presses
E4	CORE	Cut materials using a vertical or horizontal band saw
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	Disassemble components utilizing hydraulic or arbor presses
E4	CORE	Disintegrate metal parts
E4	CORE	Drill out system parts
E4	CORE	Machine out-of-round surfaces
E4	CORE	Machine square and hexagonal holes
E4	CORE	Perform broaching procedures
E4	CORE	Perform draw filing
E4	CORE	Perform fly cutting
E4	CORE	Perform indexing procedures
E4	CORE	Perform precision measurements
E4	CORE	Straighten bent components

## PRE-MANUFACTURING PREPARATIONS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Balance grinding wheels
E4	CORE	Calculate areas and volumes
E4	CORE	Conduct equipment pre-operational checks
E4	CORE	Design special tools and adapters
E4	CORE	Draft manufacturing blueprints from sample parts
E4	CORE	Interpret blueprints to manufacture parts
E4	CORE	Layout equipment templates
E4	CORE	Layout geometric construction work
E4	CORE	Layout valve flange bolt holes
E4	CORE	Measure clearances
E4	CORE	Select carbide tools for machining applications
E4	CORE	Select plastics for intended use
E4	CORE	Set up drilling machines
E4	CORE	Set up flange refacing machines

## PUMPS AND VALVES

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	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 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>
E4	CORE	Document Quality Assurance (QA) repair form findings
E5	CORE	Prepare Quality Assurance (QA) repair forms
E5	CORE	Store controlled materials
E5	CORE	Update Quality Assurance (QA) repair forms
E4	CORE	Validate controlled materials for controlled work

## 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	Control Oxyacetylene Torch (OAT) equipment
E4	CORE	Determine surface roughness
E4	CORE	Engrave miscellaneous equipage
E4	CORE	Maintain specialty tools and calibrated instruments
E4	CORE	Perform layout and bench work
E4	CORE	Perform machine shop calculations
E5	CORE	Repair shop equipment
E4	CORE	Sandblast miscellaneous equipage
E4	CORE	Setup Oxyacetylene Torch (OAT) equipment
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**

NEC U31A, U32A, U33A or other NECs as assigned

**Job Description**

Machinery Repairmen Journeymen manufacture replacement parts, repair or overhaul engines, propulsion and auxiliary systems on ships, aircraft, submarines, and various equipment; work on deck equipment; perform machine shop and repair duties utilizing machine shop equipment, such as lathes, drill presses, bench grinders, milling machines, power saws, Computer-Aided Design (CAD) software, Computer Numerically Controlled (CNC) machinery, vertical turret lathes, boring mills, precision grinders, metal buildup equipment, and heat treating equipment; calculate time and material needed for machine shop work; produce replacement parts by interpreting blueprints; draw sketches, prepare specifications, and select material utilizing advanced metallurgy for replacement parts; work with precision measuring instruments such as micrometers, depth gauges, dial calipers, gauge blocks, protractors, dial indicators, gear tooth veneers, and hardness testing equipment; operate engravers; and are expected to perform work independently and supervise apprentice machinists.

**DoD Relationship**Group Title

Machinists

DoD Code

170200

**O\*NET Relationship**Occupation Title

Tool and Dye Makers

SOC Code

51-4111.00

Job Family

Production

**Skills***Equipment Selection**Management of Material Resources**Operation and Control**Repairing**Quality Control Analysis**Operations Analysis**Mathematics**Critical Thinking**Reading Comprehension**Installation***Abilities***Information Ordering**Control Precision**Arm-Hand Steadiness**Mathematical Reasoning**Written Comprehension**Deductive Reasoning**Manual Dexterity**Written Expression**Finger Dexterity**Inductive Reasoning***FABRICATIONS AND MANUFACTURING****Paygrade****Task Type****Task Statements**

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 impellers from castings

E5

CORE

Machine pump casing rings

E5

CORE

Machine pump casings

E5

CORE

Machine pump housing surfaces

E5

CORE

Machine pump shaft sleeves

E4

CORE

Machine pump shafts

E5

CORE

Machine strainer bodies

E4

CORE

Machine system zincs

E4

CORE

Machine threads

E4

CORE

Machine valve disks

E5

CORE

Machine valve flange surfaces

E4

CORE

Machine valve hand wheels from castings

## FABRICATIONS AND MANUFACTURING (CONT'D)

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Machine valve seats
E5	CORE	Manufacture bevel gears
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
E4	CORE	Manufacture equipment wearing rings
E4	CORE	Manufacture gauge plugs
E4	CORE	Manufacture hatch dogs
E5	CORE	Manufacture helical gears
E4	CORE	Manufacture machinery pulleys
E4	CORE	Manufacture machinery shafts
E4	CORE	Manufacture machinery shims
E4	CORE	Manufacture machinery spacers
E4	CORE	Manufacture machinery splines
E5	CORE	Manufacture machinery sprockets
E4	CORE	Manufacture metal and non-metal pins
E4	CORE	Manufacture pad eyes
E4	CORE	Manufacture shaft keys
E4	CORE	Manufacture spur gears
E4	CORE	Manufacture stanchion bolts
E4	CORE	Manufacture strainer plugs
E5	CORE	Manufacture stub tooth gears
E4	CORE	Manufacture system flanges
E5	CORE	Manufacture worm gears
E5	CORE	Manufacture worm wheels
E5	CORE	Repair end bell housings

## MACHINE OPERATIONS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Assemble components utilizing hydraulic or arbor presses
E4	CORE	Cut materials using a vertical or horizontal band saw
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

### **MACHINE OPERATIONS (CONT'D)**

<b><u>Paygrade</u></b>	<b><u>Task Type</u></b>	<b><u>Task Statements</u></b>
E4	CORE	Dial in shafts on mills
E4	CORE	Disassemble components utilizing hydraulic or arbor presses
E4	CORE	Disintegrate metal parts
E4	CORE	Drill out system parts
E5	CORE	Finish surfaces utilizing honing equipment
E5	CORE	Machine angles on vertical turret lathes
E4	CORE	Machine out-of-round surfaces
E5	CORE	Machine parts using Computer Numerically Controlled (CNC) machines
E5	CORE	Machine parts using milling operations on lathes
E4	CORE	Machine square and hexagonal holes
E4	CORE	Perform broaching procedures
E5	CORE	Perform Computer-Aided Design (CAD)/Computer Automated Machining (CAM)
E4	CORE	Perform draw filing
E4	CORE	Perform fly cutting
E4	CORE	Perform indexing procedures
E4	CORE	Perform precision measurements
E4	CORE	Straighten bent components

### **PRE-MANUFACTURING PREPARATIONS**

<b><u>Paygrade</u></b>	<b><u>Task Type</u></b>	<b><u>Task Statements</u></b>
E4	CORE	Balance grinding wheels
E4	CORE	Calculate areas and volumes
E4	CORE	Conduct equipment pre-operational checks
E4	CORE	Design special tools and adapters
E4	CORE	Draft manufacturing blueprints from sample parts
E4	CORE	Interpret blueprints to manufacture parts
E4	CORE	Layout equipment templates
E4	CORE	Layout geometric construction work
E4	CORE	Layout valve flange bolt holes
E4	CORE	Measure clearances
E4	CORE	Select carbide tools for machining applications
E4	CORE	Select plastics for intended use
E5	CORE	Set up Computer Numerically Controlled (CNC) machines
E5	CORE	Set up cylindrical grinders
E4	CORE	Set up drilling machines
E5	NON-CORE	Set up electroplating equipment
E4	CORE	Set up flange refacing machines
E5	CORE	Set up surface grinders
E5	CORE	Set up tool and cutter grinders

### **PUMPS AND VALVES**

<b><u>Paygrade</u></b>	<b><u>Task Type</u></b>	<b><u>Task Statements</u></b>
E4	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 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**

<b><u>Paygrade</u></b>	<b><u>Task Type</u></b>	<b><u>Task Statements</u></b>
E6	CORE	Develop Controlled Work Packages (CWP)
E6	CORE	Develop Formal Work Packages (FWP)
E4	CORE	Document Quality Assurance (QA) repair form findings
E5	CORE	Prepare Quality Assurance (QA) repair forms
E5	CORE	Store controlled materials
E5	CORE	Update Quality Assurance (QA) repair forms
E4	CORE	Validate controlled materials for controlled work
E7	CORE	Verify accuracy of Controlled Work Packages (CWP)
E7	CORE	Verify accuracy of Formal Work Packages (FWP)
E7	CORE	Verify accuracy of Quality Assurance (QA) repair forms

### **SHOP OPERATIONS**

<b><u>Paygrade</u></b>	<b><u>Task Type</u></b>	<b><u>Task Statements</u></b>
E5	CORE	Analyze equipment malfunctions
E4	CORE	Check surfaces for squareness
E6	NON-CORE	Conduct machine operation training
E4	CORE	Conduct metal hardness tests
E4	CORE	Conduct metal identification tests
E4	CORE	Control Oxyacetylene Torch (OAT) equipment
E4	CORE	Determine surface roughness
E5	CORE	Develop computer-aided machining programs
E6	CORE	Draft production schedules
E7	CORE	Draft shop policies

**SHOP OPERATIONS (CONT'D)**

<b><u>Paygrade</u></b>	<b><u>Task Type</u></b>	<b><u>Task Statements</u></b>
E4	CORE	Engrave miscellaneous equipage
E5	CORE	Heat treat metals using ovens
E4	CORE	Maintain specialty tools and calibrated instruments
E7	CORE	Manage production schedules
E4	CORE	Perform layout and bench work
E4	CORE	Perform machine shop calculations
E5	CORE	Repair shop equipment
E4	CORE	Sandblast miscellaneous equipage