

## MACHINISTS

RAPIDS: 0296D

O\*NET/SOC: 51-4041.00

REVISION DATE: 09/2019

**TRADE DESCRIPTION:** Set up and operate a variety of machine tools to produce precision parts and instruments. Includes precision instrument makers who fabricate, modify, or repair mechanical instruments. May also fabricate and modify parts to make or repair machine tools or maintain industrial machines, applying knowledge of mechanics, mathematics, metal properties, layout, and machining procedures.

**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: 2112, 2161

USCG: MK

USN: MR

USA MOS: 881A, 88L, 914A, 915E, 91E, 91X, 91Z

### Related Instruction:

Trade related On-The-Job-Training (OJT) or Any Trade related schools/courses totaling 432 or more hours.

### Additional Requirement:

None

Total Hours: **6000**

Skill	Description	Hours
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<b>A</b>	<p><b>FUNDAMENTALS</b></p> <ul style="list-style-type: none"> <li>-- Knowledge of design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.</li> <li>-- Prepare working sketches for the illustration of product appearance.</li> <li>-- Dispose of scrap or waste material in accordance with company policies and environmental regulations.</li> <li>-- Separate scrap waste and related materials for reuse, recycling, or disposal.</li> <li>-- Confer with engineering, supervisory, or manufacturing personnel to exchange technical information.</li> </ul>	<b>1000</b>
<b>B</b>	<p><b>EQUIPMENT</b></p> <ul style="list-style-type: none"> <li>-- Demonstrate safe operation and upkeep of shop equipment.</li> <li>-- Calculate dimensions or tolerances, using instruments such as micrometers or Vernier calipers.</li> <li>-- Operate equipment to verify operational efficiency.</li> <li>-- Monitor the feed and speed of machines during the machining process.</li> <li>-- Maintain machine tools in proper operational condition.</li> <li>-- Diagnose machine tool malfunctions to determine need for adjustments or repairs.</li> <li>-- Program computers or electronic instruments, such as numerically controlled machine tools.</li> <li>-- Dismantle machines or equipment, using hand tools or power tools to examine parts for defects and replace defective parts where needed.</li> <li>-- Confer with numerical control programmers to check and ensure that new programs or machinery will function properly and that output will meet specifications.</li> <li>-- Install repaired parts into equipment or install new equipment.</li> </ul>	<b>1000</b>
<b>C</b>	<p><b>MANUFACTURE OF INTERNAL COMPONENTS</b></p> <ul style="list-style-type: none"> <li>-- Study sample parts, blueprints, drawings, or engineering information to determine methods or sequences of operations needed to fabricate products.</li> <li>-- Lay out, measure, and mark metal stock to display placement of cuts.</li> <li>-- Fit and assemble parts to make or repair machine tools.</li> <li>-- Install experimental parts or assemblies, such as hydraulic systems, electrical wiring, lubricants, or batteries into machines or mechanisms.</li> </ul>	<b>1500</b>

<b>D</b>	<p><b>TESTING/INSPECTING OF INTERNAL COMPONENTS</b></p> <ul style="list-style-type: none"> <li>-- Measure, examine, or test completed units to check for defects and ensure conformance to specifications, using precision instruments, such as micrometers.</li> <li>-- Check work pieces to ensure that they are properly lubricated or cooled.</li> <li>-- Support metalworking projects from planning and fabrication through assembly, inspection, and testing, using knowledge of machine functions, metal properties and mathematics.</li> </ul>	<b>500</b>
<b>E</b>	<p><b>PORTABLE MACHINING OPERATIONS</b></p> <ul style="list-style-type: none"> <li>-- Machine parts to specifications, using machine tools, such as lathes, milling machines, shapers, or grinders.</li> <li>-- Set up, adjust, or operate basic or specialized machine tools used to perform precision machining operations.</li> <li>-- Establish work procedures for fabricating new structural products, using a variety of metalworking machines.</li> <li>-- Align and secure holding fixtures, cutting tools, attachments, accessories, or materials onto machines.</li> <li>-- Evaluate machining procedures and recommend changes or modifications for improved efficiency or adaptability.</li> </ul>	<b>1000</b>
<b>F</b>	<p><b>SPECIALIZED MACHINIST OPERATIONS</b></p> <ul style="list-style-type: none"> <li>-- Set up or operate metalworking, brazing, heat-treating, welding, or cutting equipment.</li> <li>-- Study sample parts, blueprints, drawings, or engineering information to determine methods or sequences of operations needed to fabricate products.</li> <li>-- Test experimental models under simulated operating conditions for purposes such as development, standardization, or feasibility of design.</li> <li>-- Design fixtures, tooling, or experimental parts to meet special engineering needs.</li> </ul>	<b>1000</b>