

WELDER, COMBINATION

RAPIDS: 0622D

O*NET/SOC: 51-4121.06

REVISION DATE: 09/2019

TRADE DESCRIPTION: Use hand-welding or flame-cutting equipment to weld or join metal components or to fill holes, indentations, or seams of fabricated metal products.

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: 1316, 2161, 6043

USCG: AMT, DC

USN: AM, AS, HT, SW

USA MOS: 12D, 914A, 91E

Related Instruction:

Trade related On-The-Job-Training (OJT) or Any Trade related schools/courses totaling 216 or more hours.

Additional Requirement:

None

Total Hours: **3000**

Skill	Description	Hours
A	USE AND MAINTAIN WELDING EQUIPMENT AND TOOLS (HAND AND POWER)	250

	<ul style="list-style-type: none"> -- Recognize, set-up, and operate hand and power tools common to the welding trade, such as shielded metal arc and gas metal arc welding equipment. -- Detect faulty operation of equipment or defective materials and notify supervisors. -- Check grooves, angles, or gap allowances, using micrometers, calipers, and precision measuring instruments. -- Operate metal shaping, straightening, and bending machines, such as brakes and shears. -- Set up and use ladders and scaffolding as necessary to complete work. -- Join parts such as beams and steel reinforcing rods in buildings, bridges, and highways, bolting and riveting as necessary. -- Gouge metals, using the air-arc gouging process. 	
B	<p>WELDING OXYACETYLENE</p> <ul style="list-style-type: none"> -- Select and install torches, torch tips, filler rods, and flux, according to welding chart specifications or types and thicknesses of metals. -- Connect and turn regulator valves to activate and adjust gas flow and pressure so that desired flames are obtained. -- Guide and direct flames or electrodes on or across workpieces to straighten, bend, melt, or build up metal. -- Dismantle metal assemblies or cut scrap metal, using thermal-cutting equipment such as flame-cutting torches or plasma-arc equipment. 	150
C	<p>BRAZING AND SOLDERING</p> <ul style="list-style-type: none"> -- Operate brazing and soldering equipment. 	100
D	<p>WELDING ELECTRIC ARC</p> <ul style="list-style-type: none"> -- Weld components in flat, vertical, or overhead positions. -- Examine workpieces for defects and measure workpieces with straightedges or templates to ensure conformance with specifications. -- Weld separately or in combination, using aluminum, stainless steel, cast iron, and other alloys. -- Clamp, hold, tack-weld, heat-bend, grind or bolt component parts to obtain required configurations and positions for welding. -- Ignite torches or start power supplies and strike arcs by touching electrodes to metals being welded, completing electrical circuits. 	850

	<ul style="list-style-type: none"> -- Monitor the fitting, burning and welding processes to avoid overheating of parts or warping, shrinking, distortion, or expansion of material. -- Chip or grind off excess weld, slag, or splatter, using hand scrapers or power chippers, portable grinders, or arc-cutting equipment. -- Remove rough spots from workpieces, using portable grinders, hand files. or scrapers. -- Prepare all material surfaces to be welded, ensuring that there is no loose or thick scale, slag, rust, moisture, grease, or other foreign matter. -- Fill holes, and increase the size of metal parts. 	
E	GAS METAL ARC WELDING (GMAW) / GAS TUNGSTEN ARC WELDING (GTAW) <ul style="list-style-type: none"> -- Operate manual or semi-automatic welding equipment to fuse metal segments, using processes such as gas tungsten arc, gas metal arc, flux-cored arc, plasma arc, shielded metal arc, resistance welding, and submerged arc welding. 	1000
F	SAFETY <ul style="list-style-type: none"> -- Operate safety equipment and use safe work habits. -- Signal crane operators to move large workpieces. -- Use fire suppression methods in industrial emergencies. 	250
G	MATH <ul style="list-style-type: none"> -- Determine required equipment and welding methods, applying knowledge of metallurgy, geometry, and welding techniques. -- Develop templates and models for welding projects, using mathematical calculations based on blueprint information. 	50
H	SHEETMETAL TOOLS AND EQUIPMENT <ul style="list-style-type: none"> -- Position and secure workpieces, using hoists, cranes, wire, and banding machines or hand tools. -- Cut, contour, and bevel metal plates and structural shapes to dimensions as specified by blueprints, layouts, work orders, and templates, using powered saws, hand shears, or chipping knives. -- Repair products by dismantling, straightening, reshaping, and reassembling parts, using cutting torches, straightening presses, and hand tools. -- Hammer out bulges or bends in metal workpieces. 	50
I	SHOP FUNDAMENTALS	250

	<ul style="list-style-type: none">-- Analyze engineering drawings, blueprints, specifications, sketches, work orders, and material safety data sheets to plan layout, assembly, and welding operations.-- Clean or degrease parts, using wire brushes, portable grinders, or chemical baths.-- Estimate materials needed for production and manufacturing and maintain required stocks of materials.-- Mix and apply protective coatings to products.	
J	SHEET METAL PROJECTS <ul style="list-style-type: none">-- Lay out, position, align, and secure parts and assemblies prior to assembly, using straightedges, combination squares, calipers, and rulers.-- Mark or tag material with proper job number, piece marks, and other identifying marks as required.	50