

Work Processes Schedule

ELECTRONICS TECHNICIAN (PROFESSIONAL & KINDRED)

RAPIDS: 0169C

O*NET/SOC: 17-3023.01

REVISION DATE: 12/2014

Troubleshoot, repair, and maintain electronic components and systems. Utilize schematics, technical diagrams and manuals, and associated test equipment to diagnose faults. Maintain power supply systems. Maintain communications, navigation, and avionics systems. Maintain technical and maintenance documentation. Provide training in electronic system maintenance and troubleshooting. Perform related logistics functions.

Applicable Ratings/MOS

USMC MOS 2822, 2823, 2831, 2832, 2833, 2834, 2848, 2862, 2881, 2887, 2891, 5939

USCG ET

USN ET, FC

Related Instruction

Any trade related schools/courses totaling 576 hours.

Additional Requirement

None

Total Hours: **8000**

Skill	Description	Hours
A	<p>SAFETY PRACTICES</p> <p>Perform proper safety precautions when handling Electrostatic Devices (ESDs), discharging large or high voltage capacitors, working on energized circuits, working aloft, working with interlocks and safety devices, proper use of portable electric tools, electric drills, hand tools, soldering equipment, workbenches for energized electronics equipment, tag out procedures for electronics equipment, demonstrate the procedures for rescue and resuscitation of electrical shock victims and cold weather safety precautions. Perform proper handling and disposal of PCB contaminated transformers and capacitors, cathode ray tubes (CRTs), lead acid batteries and proper use of approved cleaning solvents. Demonstrate a knowledge of the hazards of induced voltages and the safety precautions to be observed, the different effects of radiation throughout the electromagnetic spectrum and the handling and disposal of radioactive tubes. Demonstrate a working knowledge of First Aid.</p>	400
B	<p>SCHEMATICS AND TECHNICAL MANUALS</p> <p>Read and interpret schematics, layouts, circuit diagrams, block diagrams, data flow charts, maintenance and service instructions, technical manuals and handbooks; prepare block diagrams, schematics, and specifications.</p>	500
C	<p>TEST EQUIPMENT OPERATION</p> <p>Troubleshoot and perform alignments on electronic systems using standard measuring instruments such as; multimeters, RMS voltmeters, oscilloscopes (both analog and digital), meggers, wattmeters, signal generators and frequency counters, communication service monitors, power meters, radar test sets, time domain reflectometers (TDRs), transmission test sets and spectrum analyzers, pulsers, logic and high voltage probes, dummy loads, software troubleshooting programs, Huntron Tracker 2000, depth sounder</p>	1000

	<p>test sets and capacitor/inductor analyzers, distortion analyzers, field strength meters, power supplies, LAN cable meter, LAN cable analyzers, optical TDRs (OTDRs) and light meters. Perform general care and maintenance of test equipment.</p>	
D	<p>GENERAL SHOP PRACTICES</p> <p>Soldering and circuit board repair to component level. Replace basic electronic and electrical components such as; resistors, inductors, capacitors, transformers, batteries, transistors and other solid state devices, including common integrated circuits and computer chips, relays, switches, connectors, speakers and microphones, fuses and circuit breakers, rheostats and potentiometers, motors and generators, LCD displays, magnetrons and klystrons. Perform both practical and theoretical circuit analysis on basic amplifiers, opamps, power supplies, oscillators, pulse circuits, digital logic circuits, modulation circuits, audio and video circuits. Install, inspect, and test coaxial cables and connectors for both flexible and semi-rigid cable; perform proper handling and storage of cable; demonstrate a working knowledge of the minimum bend radius for electrical cable, cable types, impedance, and the effects of open or shorted cables; perform proper cable routing, grouping, and spacing during the planning stages and throughout the installation; install cable identification tags; use lacing cord and/or nylon cable ties when running cable bundles for an electronic installation; pressurization of semi-rigid semi-air dielectric coaxial cable and waveguide; weatherproofing of coaxial connectors; install, inspect and test waveguide and rigid coaxial cable. Measure audio and video signal levels for interconnecting equipment, perform DB calculations, troubleshoot audio and video distribution and interconnection problems; install modular telephone/network connectors, adapters, and accessories; install solderless terminals, power connectors, D-Subminiature connectors, parallel interface connectors, BNC, SMA, TNC, UHF, RCA, DIN plugs and sockets and various adapters. Select component parts for electrical values by working with electronic formulas, calculate voltage drops, time constants, currents, series and parallel resistances. Identify ratings of component parts using electrical color codes. Use and understand basic spread-sheets, databases, word processors, e-mail, graphics and network software, virus detectors and computer diagnostic software. Using appropriate computer software, electronically program and customize a variety of features into various communication systems. Provide customer service to technical and non-technical workers; resolve customer service related problems with difficult customers.</p>	1500
E	<p>POWER SOURCES AND GROUND SYSTEMS</p> <p>Maintain and install various batteries, regulated power supplies, uninterruptible power supplies (UPS) and signal reference and fault protection subsystems, lightning protection, bonding and grounding of ship and shore facilities. Perform inspections of facility ground systems.</p>	500
F	<p>INSTALLATION AND MAINTENANCE OF COMMUNICATIONS SYSTEMS</p> <p>Install, troubleshoot repair, and perform alignments on communication transmitters and receivers; secure communications voice and data systems, modems, synchronous and asynchronous data, satellite telecommunications systems and its subsystems, loudhailers and public address systems; maintain both cable and fiber optic Local Area Networks (LANs); maintain, install, alter, replace or repair shore-based interior wiring and telecommunication systems in accordance with the National Electric Code, NFPA 70. Troubleshoot, repair, and replace faulty antenna systems.</p>	1800

<p>G</p>	<p>INSTALLATION AND MAINTENACE OF NAVIGATION AND AVIONIC SYSTEMS</p> <p>Install, troubleshoot, repair and perform alignments on various radar systems, automatic direction finding equipment(ADF), depth finders and their chart recorders, weather facsimiles, Identification Friend or Foe (IFF) transponders and interrogators, Tactical Air Navigation (TACAN) systems, tactical computer systems, Global Positioning System (GPS) receivers and Differential Global Positioning System (DGPS) broadcast sites.</p>	<p>1800</p>
<p>H</p>	<p>TECHNICAL ADMINISTRATION, TRAINING, AND LOGISTICS</p> <p>Administer and maintain electronics shop technical library and tool control. Using equipment technical manual, find manufacturer part number and cross to a National Stock Number (NSN). Locate part in shops supply system. If unable to locate part by NSN, use a cross reference book of software to locate a replacement part or alternate source of supply. Inventory and maintain shops electronic parts supply system. Update antenna plot plans, blueprints and unit grounding plans in accordance with the Civil Engineering Manual. Instruct electronics personnel in operating general-purpose electronics test equipment, major signal flow of assigned electronic systems, operation and maintenance of assigned electronic systems, electronics administration and supply. Instruct customers in the operation of assigned electronic systems; prepare departmental training schedules.</p>	<p>500</p>