

DACUM Research Chart for Marine Electrician

DACUM Panel

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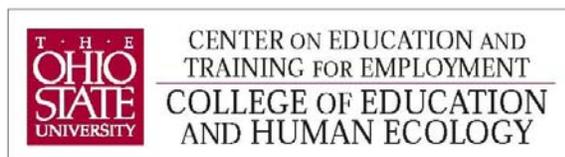
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April 3-4, 2014

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					← Tasks →	
A	I/R/R/I/T/A Electrical Equipment	A-1 I/R/R/I/T/A cams	A-2 I/R/R/I/T/A solenoids	A-3 I/R/R/I/T/A over speed governors	A-4 I/R/R/I/T/A voltage regulators	A-5 I/R/R/I/T/A brushes & boxes
		A-13 I/R/R/I/T electrical cables	A-14 Verify equipment label plate to work packages	A-15 I/R/R/I entry seals	A-16 I/R/R/I/T/A electrical breakers	A-17 Verify electrical hookups
		A-25 Inspect enclosures for physical defects	A-26 I/R/R/I/T/A motor operated valves	A-27 Verify hardware size and type (e.g., nuts, bolts, screws)	A-28 I/R/R/I/T/A photoelectric cells	A-29 Check equipment calibration dates
		A-36 Check voltage drop	A-37 Verify electrical cable types and sizes	A-38 Check panel meter calibration	A-39 Perform electrical continuity checks	A-40 I/R/R/I gasket integrity
		A-48 Verify electrical schematics	A-49 I/R/R/I preservation coating	A-50 I/R/R/I/T/A water-tight integrity	A-51 I/R/R/I/T/A degaussing systems	A-52 I/R/R/I/T/A fiber optic cables
		A-60 I/R/R/I/T electrical power sources	A-61 I/R/R/I/T/A equipment access panels	A-62 I/R equipment with assisting trades	A-63 Remove contaminants from electrical equipment	A-64 I/R/R/I/T/A interior communication circuits
B	Install/Remove Electrical Cables	B-1 Install/remove electrical cable racks	B-2 Install/remove electrical cables (e.g., fiber, copper, heliax)	B-3 Install/remove cable penetrations (e.g., transits, MCT, stuffing tube)	B-4 Install/remove cable route	
		C	Participate in Professional Development	C-1 Obtain OSHA 10 certification	C-2 Complete PPE training	C-3 Complete security training
C-13 Complete sub safe training	C-14 Obtain CPR certification			C-15 Obtain VSRA certification	C-16 Complete environmental training	C-17 Complete LOTO Plus training
C-25 Obtain cable way certification	C-26 Complete trade theory training			C-27 Complete motor controller training	C-28 Complete arc flash training	C-29 Complete power tool training
C-37 Obtain fiber optic certification	C-38 Complete radiological training			C-39 Participate in performance assessment	C-40 Provide OJT to apprentices	C-41 Complete ESD training
D	Perform Administrative Tasks			D-1 Maintain PPE	D-2 Review work package	D-3 Perform job assessments

A-6 I/R/R/I/T/A electric motors	A-7 I/R/R/I/T batteries	A-8 I/R/R/I/T/A generators	A-9 I/R/R/I/T proper mounting brackets	A-10 I/R/R/I/T/A foreign material exclusion devices	A-11 I/R/R/I/T/A alarm panels	A-12 I/R/R/I/T/A temperature switches
A-18 I/R/I/T terminal lugs	A-19 I/A air gaps	A-20 R/A motor alignments	A-21 Inspect for missing components (e.g., hardware, cover, label plates)	A-22 I/R/I sleeving/wire markers	A-23 I/R/R/I/T/A electrical controllers	A-24 Check for zero voltage
A-30 I/R/R/I/T/A electrical proximity switches	A-31 I/R/R/I/T/A electrical safety features (e.g., emergency limit switches, safety guards)		A-32 Verify cable tags	A-33 I/R/R/I/T/A motor/generator/pump/couplings	A-34 I/R/R/I/T/A local and remote start/stop stations	A-35 I/R/R/I/T/A timing relays
A-41 I/R/R/I/T/A electrical transformers	A-42 I/R/R/I/T/A mechanical interlocks	A-43 I/R/R/I/T/A PLCs	A-44 I/R/R/I/T/A pressure switches	A-45 I/R/R/I/T systems indicator lights	A-46 Conduct vibration analysis	A-47 Conduct temperature analysis
A-53 Discharge electrical capacitors	A-54 I/R/R/I/T/A tank level indicators	A-55 I/R/R/I/T electrical equipment grounding	A-56 I/R/R/I/T/A electrical enclosures	A-57 Verify varnish viscosity	A-58 I/R/R/I/T electrical fuses	A-59 Complete disconnect/reconnect sheet
A-65 I/R/R/I/T/A cathodic protection	A-66 I/R/R/I/T/A heliax electrical cable	A-67 Clean electrical components	A-68 Complete operational acceptance testing			
B-5 Install/remove interferences (e.g., paint, pipers, insulation)	B-6 Install/remove cable hangers	B-7 Perform electrical cable splices	B-8 Perform electrical cable bag and tag	B-9 Install/remove electrical cable banding	B-10 Perform insulation resistance and continuity checks	
C-6 Complete evacuation training	C-7 Complete indoctrination training	C-8 Participate in OJT	C-9 Complete electrical safety training	C-10 Complete absence of voltage training	C-11 Complete non-nuclear execution process training	C-12 Complete confined spaces training
C-18 Complete electrical inservice training	C-19 Complete cable cutting training	C-20 Complete energized circuits training	C-21 Complete multimeter training	C-22 Complete lockwire training	C-23 Complete hazardous material training	C-24 Complete QA/QCI training
C-30 Complete PLC training	C-31 Complete respirator fit test training	C-32 Complete digital logistics training	C-33 Obtain hlift certification	C-34 Complete fall protection training	C-35 Obtain connectorization certification	C-36 Complete lifting training
C-42 Participate in career days	C-43 Complete rotate & radiate training	C-44 Participate in apprenticeship program	C-45 Complete electrical motor rewind training	C-46 Obtain competent person certification		
D-6 Obtain paint samples	D-7 Obtain gas free certificate	D-8 Obtain hotwork permit	D-9 Certify check points	D-10 Complete work package		

General Knowledge and Skills

Knowledge of :

First aid/CPR
Safety procedures
AC/DC theory
Ship layout/configuration
Reading blueprints/schematics
Basic mechanical
NAVSEA standards
PLCs
Digital logistics
Types of cables
Fasteners
Logic circuits
Test equipment
Solid state devices
Types of controllers
Tag out procedures
OSHA standards
IEEE standards
Standard items
Metal types
Fire prevention
Global harmonized system (e.g.,
HAZMAT)
Evacuation procedures
Ship orientation
Test procedures
Radiological controls
Signs and barriers
Security
Ship systems (e.g., communications,
propulsion, navigation)

Skills:

Analytical
Basic math
Communication
Computer
Conflict resolution
Critical thinking
Interpersonal
Interpretation
Language
Leadership
Multi-tasking
Observational
Organizational
Problem solving
Reasoning
Soldering
Time management
Troubleshooting

Worker Behaviors

Able to take direction
Accurate
Adaptable
Analytical
Compliant
Decisive
Detail oriented
Ethical
Honest
Knowledgeable
Multi-tasker
Objective
Organized
Patient
Persistent
Punctual
Reliable
Self-motivated
Tactful
Team player
Thick-skinned
Thorough
Tolerant
Versatile
Willing to learn

Tools, Equipment, Supplies and Materials

AC/DC high potential tester
Accelerometers
Allen wrenches
Banding tools
Barrel nut drivers
Bazooka tools
Batteries
Cambric (varnish) tape
Camel backs
Center punch
Chemical shower
Clipboards/folders
Cold chisels
Computer
Crimping positioner
Crowsfoot
Decade box
Decon station
Drills/bits
Electrical safety kit
Eye wash station
Files

Tools, Equipment, Supplies and Materials (*cont'd*)

First aid kit
Fish tape
Flashlight
Ford wrench
Fuse pullers
Gloves (electrical, chemical, abrasion)
Grinders
Growler
Hammers
Heat gun
Heaters/fans
Helicoil
Hole saw
Hydraulic/battery powered cutters
Hydrometer
Insertion/extraction tools
Level
Locks
Lug wrench
Micrometer
Oscilloscope
Oxyacetylene torch
PLC software
PPE
Ratchet/sockets
Razor knife
Ruler
Safety harness
Safety shield
Saws all
Screw starters
Screwdrivers
Scribe
Security badges (RAPIDGate®, TWIC®, yard)
Signal tracer
Slugging wrench
Solder ferrules
Soldering iron
Spanner wrench
Strap wrenches
Stud gun
Surge tester
Tachometer
Tape (electrical, rubber, glass)
Tape measure
Thermographic camera
Thermometer
Tie rack gun
Tone generator
Tool bag/box

Torque wrench
Vice grips/pliers
Wedges & clamps
Wire brushes
Wire crimper
Wire strippers
Wire cutters
Wrenches

Future Trends and Concerns

More PLC technology being used today
Higher voltages in use today
Growing use of fiber optics
Need for more training in copper connections, static inverters, and renewable energy usage
Need for higher training budgets
Ergonomic considerations in the trade
Policies and procedures that limit job performance
Growing use of wi-fi/wireless systems
Security changes effect on small business
Effect of security breaches on policy
Shrinking fleet size of U.S. Navy/Coast Guard
Need for more training in automated systems
Increasing medical costs affecting employees
Union constraints
Changes in materials (paints, carbon fibers)
Impact of OSHA requirements

Acronyms

MCT Multi Cable Transit
PPE Personal Protective Equipment
IEEE Institute of Electrical & Electronics Engineers
WAF Work Authorization Form
MSDS Material Safety Data Sheet
LOTO Log Out/Tag Out
AOV Absence of Voltage
PLC Programmable Logic Controller
QA Quality Assurance
QCI Quality Control Inspector
VSRA Virginia Ship Repair Association
COWR Complete Work Order
IVV Initial Voltage Verification
ESD Electrostatic Discharge
OSHA Occupation Safety & Health Administration
OJT On Job Training
I/R/R/I/T/A Inspect/Remove/Repair /Install/
Troubleshoot/Adjust
AC Alternating Current
CPR Cardio Pulmonary Resuscitation
DC Direct Current
PPE Personal Protective Equipment
HAZMAT Hazardous Material
NAVSEA NAVal SEA Command